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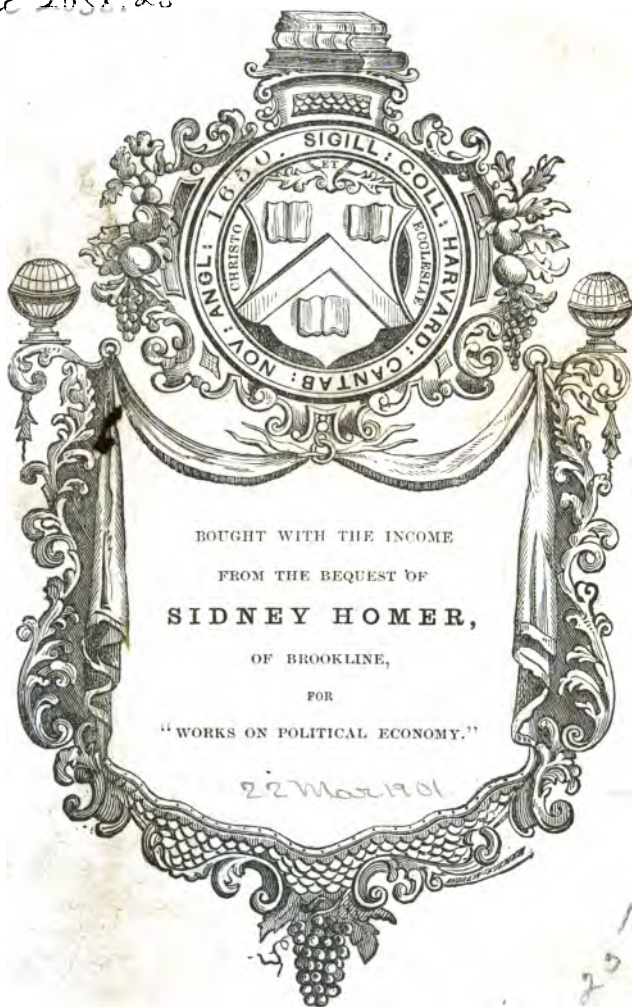
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Dec 2058.28





THE
British Cotton Manufactures,

AND

A REPLY TO AN ARTICLE

ON THE

SPINNING MACHINERY

CONTAINED IN A RECENT NUMBER OF THE

EDINBURGH REVIEW.

BY RICHARD GUEST.

"ERROR HOPS WITH AIRY AND FASTIDIOUS LEVITY OVER PROOFS AND ARGUMENTS,
AND PERCHES UPON ASSERTION, WHICH IT CALLS CONCLUSION."—*Curran.*

MANCHESTER:

PRINTED BY HENRY SMITH, ST. ANN'S-SQUARE.

SOLD BY

E. THOMSON & SONS, MARKET-STREET; AND W. & W. CLARKE, MARKET-
PLACE; AND LONGMAN, REES, & CO. LONDON.

1828.

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THE leading periodical Reviews of the present time, exercise a very powerful influence over the opinions and tastes of their readers. The characters of authors and the success of books, are, consequently, in a great measure, at their mercy ; they can build up, or destroy, a reputation with a paragraph, and great must the degree of excellence be, which will enable a work to struggle into popularity and estimation in despite of their fiat. Of that small portion of the public, who would have the curiosity to purchase, and to read, a work condemned by them, few would have the confidence in their own judgment and the mental independence, to assert, openly and unhesitatingly, an opposite appreciation. Instead of arraigning and stigmatizing a critique, as partial and unjust, they would timidly dissent from it, half suspecting they might themselves be mistaken, in differing from so high an authority. It is true, the reviews might not be able to set

up a decidedly bad and contemptible book, nor to write down one of first rate character, but, over the numbers that hover between these extremes,—in the intermediate region,—the temperate zone of literature, their sway is despotic. An author who can cull from their article a sentence of panegyric, and plant it in the fore-front of an advertisement of his work, may safely reckon upon its commanding a sale, and finding readers. They can usher him up the path which leads to profit and distinction,—they have it in their power to confer emolument and fame.

Upon calm consideration, we may, perhaps, doubt the expediency of their having been, by the tacit assent of the public, invested with this power. One of the effects of its exercise, is to cramp and confine the energies of the mind. An author is more anxious about what the reviewers may say of him, than he is ready to commit himself to the unfettered impulse of his thought. They are a curb to the eccentricities and the developement of genius. Instead of being its humble handmaids and followers, they become its masters and directors ; at the same time that numerous and weighty reasons render their estimate a very uncertain standard of taste, and a very unsafe criterion of excel-

lence. To obtain their recommendation and applause must be the desire and ambition of many a writer, and, when an object is highly desirable, it would be to deny the usual course of human action, to suppose that it may not occasionally be sought, or obtained, by indirect means. There are possible circumstances to be imagined between author and reviewer that will procure a flattering notice of a work, not intrinsically deserved; supposing only, that the latter be of a certain cast of mediocrity, which will not absolutely disgrace the encomium. Personal intimacy, a spirit of clanship, the sympathy of fellow-countrymen, a conformity of religious or political opinion, will produce the same result. On the other hand, private feelings of unfriendliness, envy, the antipathies of party spirit, prejudice, or resentment, will cause a publication to be disparaged considerably below its actual demerits. To what extent these various motives may operate the public is ignorant. It is inherent in the character of an anonymous writer that the integrity of his censure or commendation cannot be scanned; they are, therefore, questionable and suspicious, unless confirmed by the judgment of the reader. Observations of this nature may not be palatable to those who are the subject of them, and I am prepared

for their drawing down upon what I have written, a plentiful share of detraction and abuse. The priests of the temple are not likely to be very placable towards the intruder who lays his finger on the curtain of the *sanctum sanctorum*. Censure or vituperation, cannot, however, render less certain the occasional influence of the motives I have mentioned, and may, perhaps, in fact, furnish a proof of the reality of their operation. If the reader should find, at a future period, in the pages of these literary censors, a philippic directed against myself, let him call to mind the freedom of my present remarks, and then draw his own conclusions.

On the original establishment of reviews, they purported to be critical examinations of literary and scientific publications, emanating from an association of enlightened individuals who sat in judgment upon them, and indicated to the public such as were valuable, and exposed, or ridiculed, the vapid and worthless. They proposed to give "a compendious account of the productions of the press, which "in virtue of its candour and justness of "distinction, should obtain authority enough "for its representations to be serviceable to "such as would choose to have some idea "of a book before they laid out their money

"or time on it." Their opinions and criticisms as coming from a legitimate literary tribunal, which kept aloof from the character of partizan, and gave equitable and unbiassed judgments between contending controversialists, or competitors for literary fame, obtained for them a weight and authority to which, perhaps, they might not be entitled from intrinsic excellence; and a constant and systematic use of the powerful plural "*We*" sanctioned and confirmed their ostensible character. The bulk of mankind take their opinions on trust, and it is convenient and agreeable for those, who are too much occupied, or too indolent for close application, to be led through the flowery paths of an entertaining miscellany, to conclusions, which, to be arrived at without a guide, require troublesome reflection and tedious examination. Thus private judgment is to a considerable extent superseded by reviews, and they are become the leading tests of merit, and arbiters of success.

That they were ever so conducted as above supposed is improbable, but certainly, at the present time, almost every article which they give to the world, is the production of an individual writer, occasionally, it may be, revised by another for facts or style, and even that but rarely. Notwithstanding this, and

that the name of the author of a particular critique often transpires, the public entertain an almost unconscious feeling that the character originally assumed by the early reviews, is, at this day, an actual entity, and that the sweeping assertions, the gratuitous assumptions, the bold prognostications, the "*We are quite sure*," "*We have no doubt*," &c. &c. to be found in them,* are really those of a body of wise men and not of a poor fallible individual like the one reviewed.

The public would shrink from receiving the opinion of A. B. *proprio nomine* as authority, but when that same A. B. speaks through the vizard of the Edinburgh Review, for them his dogmas are oracular. Clothed in the blue and yellow panoply, he becomes quite another personage. Less sagacious than the fox, they scarcely discriminate between the king of beasts, and a certain useful quadruped, provided both wear the same envelope. The pamphleteer who can procure the insertion of his lucubrations in that extensively read publication, has a wide circle of the public prepared for his reception, an applauding audience ever ready to be pleased, from the variety to be met with in it, and the unquestionable

* See Edinburgh Review, No. 91, article 1st, pages 32 and 35.

ability with which some of its articles are written. A controversy with an opponent possessed of such advantages, is no longer an engagement of even warfare; it is a contest between a combatant naked in the arena, and an armed and mailed adversary. When an author comes into conflict with such an antagonist, it becomes of material consequence, that he should divest him of the means which give him so decided a superiority, and put the battle on an equal footing. I shall therefore without further ceremony take the liberty of removing the mask from the person of the author of an article on the Cotton Manufactures of this country, contained in the last number but one (No. 91) of the Edinburgh Review, in which a small work, published by me three or four years ago is attacked and controverted, and, at once, inform the reader, that he is Mr. Mc. Culloch, the lecturer on political economy.

In the work alluded to, which was entitled "A compendious History of the Cotton Manufacture," I had occasion to speak of the various inventions in machinery by which the cotton manufactures of Great Britain have been brought to their present surprising extent and perfection.

The Throstle or Water-frame, the principle of which is to draw out a coarse thread, or rather long fleece of cotton wool, (the fibres being previously disposed in a longitudinal direction,) by the revolutions of successive sets of Rollers between which it passes, was one of these. As being, in its progress and its subsequent combination with the spinning Jenny in the Mule, the substantial basis of the increase and extension of the manufacture that has called into existence so immense a population and opened such sources of opulence to individuals, of revenue to the Government, and of wealth to the country at large, I thought it desirable to trace its early history. In so doing, I had occasion to expose a common, but, by no means, a general error, namely, that the late Sir Richard Arkwright was the inventor of it. I was well aware that he appropriated it to himself, and that it was one of those machines for which he took out his patents, but I stated that one Higs, or Hayes, as he is called in some places, a Reed-maker, residing at Leigh, in Lancashire, invented it in that town, about the years 1766 or 1767. I did not labour the point, because, to those well-acquainted with the early history of the Cotton Manufacture, the circumstance was well known; and I thought that those who were superficially in-

formed on the subject, and who might have been led into the mistake by knowing that Sir Richard Arkwright took out a patent for it, would be undeceived by the narrative and proofs given. My intention was not to inform those who were already well informed, but, in treating the general subject, to touch upon that matter incidentally, and to confirm and establish the better opinion, which I knew was entertained by many. To have entered into a minute and critical examination of the whole question, I thought, would be labour thrown away,—twice to slay the slain. I gave certain facts and dates, which I had taken the trouble to collect from original sources and for the incontrovertible accuracy of which I can vouch. My account rested, for the most part, on the evidence of witnesses given in a court of justice, subject to that strong test of truth, a cross-examination from the ablest advocates of the time;—to the scrutiny and winnowing of such men as were Mr. Serjeant Adair, Mr. Cowper, Mr. Wilson, Mr. Chambre, Mr. Baldwin, and Mr. Anstruther; for, such a formidable array of counsel did Mr. Arkwright marshal, to beat down and defeat the case and the evidence of those who were resisting his patent right. Additional weight and value was given to it, by its having been delivered in the presence of all the par-

ties interested, and upon an occasion likely to be final, with regard to the question at issue. Other proofs adduced by me, consisted of dates copied from parish registers, the statements of persons who were cotemporary with those spoken of, and on the unvarying accounts and relations handed down from those who lived in the town of Leigh, when Higs and Kay, his workman, resided there, and who knew them and Mr. Arkwright personally. Such were my data, and any of a more unexceptionable and trust-worthy description, respecting events long gone by, are not easily to be imagined. I thought the question would have been finally set at rest by them, and was not a little surprized, when I found the old exploded story again set up, by a publication so much looked up to, and so influential, as the Edinburgh Review.

I shall afterwards give the secret history of the article in question, but in the first place address myself to the consideration of the subject itself, and, here, beg to say, that independently of answering the attack of Mr. Mc. Culloch, I think it is well worthy of investigation on its own merits. I cannot consider it an unworthy, or ignoble task, to examine the claims of rival candidates for posthumous fame, to assign to each his own,—

sum cuique,—to remove the laurel from the brows of the false, and place it on those of the true victor. Its effect is to animate and encourage the future aspirant, up the path of industry and honour, by teaching him that though delusion and circumstances may for a time conceal his merits, posterity will ultimately do him justice—to enable him to say with Milton,—“*Si quid meremur sana posteritas sciet.*” It is likewise no less expedient, with a view to the prospective and future interests of society, to pay this tribute to the dead, than a high and binding claim which they have upon our justice. It is a debt due to their memory, as well as a testimony of gratitude for the services they have rendered their country and mankind.

I adopt in the outset a remark from Mr. Mc. Culloch, and hope it will be my apology to the reader, if any matters treated of appear laboured or tedious, or if he thinks the pains and time bestowed upon them are out of proportion to their magnitude or importance. He observes (page 2) “How astonishing it is that so few attempts have been made to trace the rise and progress of this great branch of industry, (the Cotton Manufacture of this country,) to mark the successive steps in its advancement, the solidity of the foundations on which it rests, and the influence

“ which it has already had, and must continue “ to have, on the number and condition of the “ people.” There is another point too on which he and I agree, as I believe do all who have written upon the subject, namely, that the water-frame or spinning by rollers, is one of the most ingenious inventions of man,—one of the most difficult and remote to be arrived at *a priori*,—and one of the least likely to be devised or imagined from analogy or induction. He says farther (page 9) it “ is by “ far the most important, or rather, indeed, “ the essential part of his” (Sir Richard Arkwright’s) “ inventions.”

I make two propositions :

First, that Sir Richard Arkwright did not invent it.

Secondly, that Higs, of Leigh, his contemporary and the fellow-townsmen of his second wife and her family, did so.

It is obvious that the second cannot stand without the first, but I may establish the first independently of the second. I make the distinction solely because some of Mr. McCulloch’s arguments apply to the one and not to the other.

Though the invention of the water-frame or roller spinning is subsequent in point of time to that of the spinning jenny, yet as the water-frame exceeds its precursor in ingenuity and importance, and, as it is the main object of Mr. Mc. Culloch's article to shew that Sir Richard Arkwright invented it, I shall postpone for the present my enquiry about the jenny, (the invention of which he in the same article attributes to one Hargreave) and shall, in the first place, state the facts that form the basis of the narrative with respect to the former, contained in my History of the Cotton Manufacture, and afterwards, examine on what authority, or by what evidence or argument, Mr. Mc. Culloch can impugn it.

In the years 1763, 1764, 1765, and 1766, Thomas Highs, a reed-maker, and John Kay, a clock-maker, resided in a street called the Walk, in the town of Leigh. Kay had lived in Warrington previously to 1763, and he again went to reside there when he left Leigh in 1767. In March, 1761, Richard Arkwright barber and hair-dresser, of Bolton, married Margaret Biggins,* who then lived with her

* Copy of the Parish Register of Leigh Church. "Banns of Marriage—Richard Arkwright, of the parish of Bolton, Barber, and Margaret Biggins, of this parish, of Pennington, Spinster, were married in this Church by Licence, with consent, this twenty-

father, Mr. Biggins, in the market-place in Leigh, at a house, now a public house, known as the sign of the Mill-stone. After his marriage, Mr. Arkwright was frequently at Leigh; he came thither in the way of his business, and got orders for wigs through the influence of his father-in-law, Mr. Biggins, who was a respectable inhabitant, and lived many years in the town.

Between that period and 1768, Mr. Arkwright resided at Bolton (about 7 miles from Leigh) and occupied the shop in Deansgate, in the former town, at the end of the passage, leading up to, what was then, the White Bear public house, and carried on his business there as a barber and hair-dresser. During his residence there, in consequence of his intercourse with Leigh and its inhabitants, obtained through his connection with his father-in-law's family and friends, he engaged one Dean, a workman well skilled in making the strong country wigs, then in very general use, as his journeyman; and the latter left the service of

" fourth day of March one thousand seven hundred and sixty-one,
 " by me Ja. Hartley, Curate. This marriage was celebrated
 " between us, Richard Arkwright, Margaret Biggins. In the
 " presence of S. Simpson, Lawrence Brandwood. No. 100." A
 true copy taken from the parish Register, by me, Samuel
 Whittle, parish Clerk, March 6th, 1822.

Mr. John Richardson, senior, then a hair-dresser in Leigh, and went into that of Mr. Arkwright. The same man succeeded Mr. Arkwright in his shop and business when he finally left Bolton.

Mr. John Richardson, now about 74 years of age; John Burkill, about 72; and Joseph Pownal, about 74; some of the oldest inhabitants of Leigh, and whose fathers lived there before them, can authenticate these circumstances.

It thus appears that Highs, Kay, and Arkwright, were together in Leigh, and may be considered in the light of fellow-townsmen there, about the year 1763, and for some years subsequently. It will also appear from Highs' evidence, that he personally knew Mr. Arkwright in 1764 or 1765.

In 1768, Mr. Arkwright removed to Nottingham, and on the third of July in the following year took out his first patent, which was exclusively for the roller-spinning. In 1771, he established a factory at Cromford, in Derbyshire, and about the years 1772 and 1773, his attempts at spinning had excited considerable interest in Leigh from his being so well known there, and it was common for the

respectable inhabitants of the place to go and view his engines, and buy a dozen or two of pairs of stockings, made of yarn spun by them. I have in my possession a pair of stockings so bought at that period.

In 1775 he took out a patent for several various machines, of which the principal was the rollers ; he states in a publication which he issued subsequently, that his machinery did not begin to repay him and to answer, until about that time. Within the five following years other persons, I presume, had found out that such was the fact, and begun to use his machines ; for he brought nine actions in the King's Bench against various individuals for infringing his patent right, and they came on to be tried in 1781. The first was against Col. Mordaunt, and in this he was defeated, on the ground of the insufficiency of his specification. He then withdrew the other eight that were standing for trial. From this time down to the latter end of 1784, it would appear that his machinery was openly and unrestrictedly used by the public, and no further attempt made by him to retrieve his patent ; but about that time he commenced another action in the Common Pleas to effect that object. It came on to be tried in February, 1785, and, upon that occasion, he pro-

duced witnesses who proved that from the directions in his specification, they should be able to make his machinery, and, in consequence, he obtained a verdict. On neither of these trials was the originality of the inventions gone into; they turned solely on the sufficiency, or insufficiency, of the specification.

It seems his opponents, after their defeat, did not sleep on their oars, for, in *that same* year, they *themselves* commenced an action on *Scire facias* against him, to set aside and annul his patent. In that action, both the insufficiency of his specification and the non-originality of the inventions, were put in issue, and, on the latter subject, the following evidence was given on behalf of the crown. I shall give a summary of it in the text, but, that I may not be suspected of distorting, or garbling it, I shall give it *verbatim* in the notes.

The trial took place before Mr. Justice Buller, and the issues joined upon the record were four :—

First, that the grant of the patent to Mr. Arkwright was prejudicial to his Majesty's subjects.

Secondly,—that the invention was not a new invention.

Thirdly,—that the invention was not invented and found out by Mr. Arkwright.

And Fourthly,—that Mr. Arkwright had not sufficiently described the nature of his invention.

One of the machines for which the patent was taken out, was the roller spinning frame.

Highs is called Hayes in the report of the trial, but, as his name is written Highs in Leigh Church Register, and is so pronounced by his family and the neighbourhood, I have adopted that orthography.

On being examined, in the course of the cause, he deposes,* that he made rollers for

* The Evidence of Thomas Highs, given in the Court of King's Bench, on the 25th day of June, 1785, on the Trial of a cause instituted on a Writ of Scire Facias, to repeal a Patent granted to Mr. Richard Arkwright, 16th December, 1775. London, folio, 1785.

Thomas Highs, sworn. Examined by Serjeant Bolton.

Q. What business are you?

A. By trade I am a reed-maker.

spinning cotton, similar to a model produced in court, (which was the machine claimed by Mr. Arkwright,) in the year 1767; that his rollers were not fluted at first, but, that afterwards, they were so; that he, in the first in-

Q. Have you been employed to make machines for manufacturers?

A. I have.

Q. Look at this carding-machine, with the two cylinders, the great one and the little one. Look at that—how long ago have you seen one of those?

A. It is about twelve years; between twelve and thirteen years.

Q. Was your little cylinder like that, covered over with needles?

A. Covered over with cards, it was.

Q. Do you happen to remember, Mr. Highs, telling Mr. Arkwright about this?

A. About this, Sir?

Q. Aye!

A. No, not about that.

Q. But about the machine that was made?

A. No, I did not tell him about that, it was made after I had some discourse with Mr. Arkwright.

Q. When was it you had that discourse with Arkwright?

A. It might be about thirteen years since, as near as I can guess, but cannot just remember every thing.

Mr. Serjeant Bolton—I will take him to the rollers. Look at the rollers through which the thread comes, the roving or spinning, or whatever it is called. Did you ever see rollers like those before 1775, before Mr. Arkwright's patent?

A. I have seen rollers; I made rollers myself in 1767.

Q. You yourself made rollers in 1767?

A. Yes, Sir.

Q. Have you looked at them; you see one is fluted, the other covered with leather?

A. I see it is.

stance, employed John Kay, a clockmaker, to make him a small model with four wheels of wood ; that he showed Kay in what manner it was to work, and desired him to make brass wheels which would multiply about five

Q. Was yours the same way.

A. Yes, mine was, two years after, but not then.

Q. Not at first ?

A. No.

Q. In 1769 yours were like it ?

A. They were, mine had fluted work ; fluted wood, upon an iron axis ; but the other roller was the same, only it was covered with shoe leather instead of that leather ; I am informed it is such as they make shoes of.

Q. Who did you employ when you first conceived this invention, who did you employ to make it for you ?

A. I employed one Kay, who came from Warrington.

Q. What trade was he ?

A. He followed clock-making at that time.

Q. You employed him to make it ?

A. Yes, I employed him to make a small model, with four wheels, of wood, to shew him the method it was to work in, and desired him, at the same time, to make me brass wheels, that would multiply it about five to one.

Q. Look at that, and see whether it is upon the same principle ?

A. No, not exactly so ; the wheels were not exactly so.

Q. Who made you the wheels ?

A. I made them myself.

Q. Describe what you mean by multiplying five to one ?

A. By making the different rollers go, one faster than the other.

Q. Was that for the purpose of drawing the thread finer ?

A. Yes, Sir.

Mr. Erskine.—It is very necessary your Lordship should take notice, the only description given by Mr. Arkwright, for his

to one, and to make the several sets of rollers go, one faster than the other, for the purpose of stretching and drawing out the cotton.

Some little confusion arises from his mis-

rollers, falls in directly with this man's description. All he says, is, "No. 6 consists of rollers fixed to a wooden frame, the contents of No. 5 being brought to it, and going through, produce it to a proper size."

Mr. Lee.—It does not say shoe leather, or calf leather, or any thing else about it.

Mr. Serjeant Bolton.—Do you remember being at Manchester races, 1767?

A. No.

Q. Did you see Mr. Arkwright at any time?

A. Yes.

Q. When might you see him?

A. I suppose about twenty years since; or about twenty-one years since or thereabouts, somewhere there away.

Q. Now, recollect yourself, and tell us what passed between you and Arkwright, when you saw him?

A. I will tell, as near as I can. There was a gentleman, a tradesman in Bolton, one Thomas Rothwell; this Thomas Rothwell and I were pretty intimate; I met him in Manchester at a certain time, and he asked me, "Could you like to see Mr. Arkwright? he is in town." With all my heart, says I. He said, "If I had a mind, he could bring me into his company, or bring him into Mrs. Jackson's, to have a glass together, and we might have a bit of discourse together."

Q. Did you get together?

A. Yes, he brought him in, I remember into a little apartment, I believe the parlour of the house; we fell into some conversation about engines; at that time I was making another engine for a gentleman in Manchester, that they gave me a premium for. It happened I was there at that time, and Mr. Arkwright; and accordingly we fell into conversation, and I began to

understanding a question of Mr. Serjeant Bolton's. He is asked: "Did you see Mr. Arkwright and when? It seems probable he understood the question as if it had been: When did you *first* see Mr. Arkwright? and

tell him he had got my invention. I told him, I had shewn the model of it to John Kay, the method I intended to use the rollers, because John Kay's wife had told me that before, how it happened, and Mr. Arkwright and them could never deny it. I told him, I had been informed that he had hired Kay, for twenty or twenty-one years, for about half-a-guinea a week, or something more, I dont know what; but however, I should go on, if I would. I told him which way she told me he came by it. He said very little about it: when I told him, he never would have had the rollers but through me, he put his hand down in this way, and never said a word.

Q. You will please to repeat that, I dont hear you.

A. I shall as near as I can; would you have me repeat all again?

Mr. Justice Buller.—No, only what you said last.

A. I happened to meet with Thomas Rothwell.

Q. What discourse had you with Arkwright about the rollers?

A. We were in some discourse about the rollers: I told him he would never have known them but for me, and he put his hand in this manner, I remember very well in this manner, to his knee, and that was the answer he gave; also he told me, when I told him it was my invention, suppose it was, he says, if it was, he says, if any man has found out a thing, and begun a thing and does not go forwards, he lays it aside, and any other man has a right in so many weeks or months, (I forget now) another man has a right to take it up and get a patent for it.

Mr. Serjeant Bolton.—Q. Mr. Arkwright said, it was no matter if a man does not proceed upon a thing, but let it lie by so many weeks or months, he, or any other man might get a patent for it?

he answers, about twenty or twenty-one years since. This refers to his early knowledge of him in 1764 or 1765, and to his becoming acquainted with him in Leigh soon after he was married. Though the answer would ap-

A. Yes; I cannot tell how that is, says I, for I never was much concerned in law.

Q. Have you actually ever made, or not, any of these carding machines?

A. I have made carding machines, but not with these individual things, as this is,* there are various forms.

Q. Did you ever make a machine that gives a perpetual roving?

A. Yes, I did, the very same as that is.

Q. That made it a continual roving?

A. Yes.

Q. Had you a little cylinder, like that, to take off the cotton from the large one?

A. I had a cylinder, like that, to take off the cotton from the large one; but you will excuse me, both my cylinders were of a size.

Q. But, however, that cylinder from behind took off from the other cylinder, for the perpetual carding?

A. Yes, Sir.

Q. How long is it since you made those?

A. It is about twelve, or between twelve or thirteen years; nay, I am sure it is twelve years since.

Q. What did you do with them? did you sell any of them?

A. Yes, Sir, I sold them.

Q. For use to the manufacturers?

A. Yes, I did.

Q. How many did you?

A. I suppose four or five, but then I never made but one in this method; I tell nothing but the truth.

* The witness is pointing to the models exhibited in Court.

pear, on a cursory perusal of the evidence, to have reference to the discourse about the rollers which took place in Mrs. Jackson's parlour in Manchester, it cannot by any possibility refer to it, for, by his own account, the time would be two or three years *before they were invented*, and indeed he expressly says, in the preceding part of his evidence, that he had that discourse with Arkwright about thirteen years previously, as near as he could guess ; that would be about the year 1772. No doubt the discourse with Arkwright would be one of the points of evidence in the instructions of the counsel, but, from a want of clearness or intelligibility in the mode of putting the question, the witness does not understand to which of the many occasions of his seeing

Cross-examined by Mr. Serjeant Adair.

Q. You never made but one in that method ?

A. No.

Q. When did you make that ?

A. About twelve years ago.

Q. Who did you make it for ?

A. For one Mr. Walmesley.

Q. You never made but one of that kind ?

A. No I did not.

Q. It did not answer ; it was a new experiment ?

A. It did not answer the end the gentleman wanted it for ; you know it is nothing to me, I had nothing to do but work as I was ordered.

Q. What was the nature of that ?

A. To take the carding off perpetually.

Mr. Arkwright the question is directed, and very naturally goes back to the first.

If the reader peruses the examination itself, he will have to make several allowances. Highs had improved the method of carding then in use, and it was one of the points in his evidence to shew, that he had, from an engine of his own, and previously to the date of Mr. Arkwright's patent, made a perpetual, or endless, carding, that is to say, a long thin fleece of cotton, which (the engine being regularly supplied with the material,) would be produced and continued *ad infinitum*. This was a subordinate part of his evidence, although it was thought well to make use of it so far as it went, but the

Q. What sort of carding?

A. Just such as is round this, only garters were put on the same way; first and foremost, I made a cylinder of a board, and got it turned, I had workmen of my own; then when that was turned, I had got a mahogany board, and made them the breadth of the card, to fit; after that, when I had screwed them on with screws upon that cylinder, I drew them over that cylinder; then I got them throwed again, or turned; after that, I took and dressed the edges of the card a little narrower, to give liberty for the other to come in; I took the card this way, and laid it down sideways, to take up but little room, and by that means it brought the teeth so close together, as made a perpetual carding.

Q. You placed them across the cylinder, as those are, or round it like filleting.

A. No, they were put round like this.

main point was the proof of his being the inventor of the roller spinning. When Mr. Serjeant Bolton first examined him, it was with respect to the carding engine and the perpetual carding. The third, fourth, and fifth questions have reference to the carding engine solely. But, when the Serjeant, through mistake, asks him: "Do you remember having a conversation with Mr. Arkwright about this?" (that is the carding engine,) he replies "No, not about *that*." "But," says Serjeant Bolton, "about the machine that was made." Highs, still thinking the Serjeant, by the "machine that was made," means the carding engine, (as that had been the machine about which, and no other, the Serjeant had previously enquired,) replies: "No, I did not

Q. You never made but one of them?

A. No.

Q. Do you know where it was used?

A. Yes, there was a man in the town that worked upon them.

Q. What use did you put those rollers to, that were in proportion to five to one?

A. What use?

Q. Aye.

A. I made them on purpose to spin cotton.

Q. To spin?

A. Yes, and to rove too.

Q. Upon your oath, did you ever apply them to roving of cotton?

A. I will tell you how I did it: I got a board of flat wood, as this is, I took the carding first, and rolled it with another board,

tell him about that, (the carding engine,) *it* was made *after* I had some discourse with Mr. Arkwright." The only discourse he had at the time alluded to, related to the roller-spinning. The Serjeant appears to have thought, the evidence about the discourse, which he is proceeding to get from him, applied to the carding engine, which it did not; it applied to the rollers. He found that, some how or other, they were at cross purposes, and so takes him suddenly, and as it were, *per saltum*, to the rollers. He is, without doubt, badly examined throughout, but, when the question comes, as it does, abruptly: "Did you ever see rollers like those before 1775?" He answers: "I have seen rollers; I made rollers myself in 1767."

till it was a little harder; I laid loose the card at first; then I run it through the roller, to make it stronger; then, after that, I run three, four, or five through, till it was thick enough; then I put them altogether through and through again, till we made it coarse thread as this is; afterwards I put in the coarse thread, I put it in the roller again, and made it fine.

Mr. Serjeant Bolton.—The roving and spinning are done with the same rollers.

Mr. Serjeant Adair.—Q. When and where did you apply them to that purpose?

A. In the town of Leigh. I did not follow this new manufacture; I was only improving myself, as I had a large family at that time, and was not able to follow it. I thought, when I came a little abler, when I could get a friend to assist me, being poor, and having a large family, I was not willing any body should steal it from me.

He goes on to say, he had then spun cotton with them, in the way shewn by the models in Court, and, that when he first conceived the invention, he employed Kay, a clock-maker, to do the workmanship of it. After the abrupt abandonment of the enquiry respecting the conversation with Mr. Arkwright, the examination is continued, for some time, as to the fact of the invention.—The 26th question, at length, returns to the discourse about which Serjeant Bolton, at first, enquired. Highs then details the particulars of a very remarkable conversation he had with Mr. Arkwright in 1772, and which referred to the rollers and not to the carding engine, as the Serjeant appears, at first, mistakenly to have supposed.

Q. Now, Mr. Highs, this was an experiment you made for your information?

A. It was an experiment undoubtedly; I used but two spindles at that time.

Q. You meant to preserve the benefit of it, if afterwards you should be able to avail yourself of it?

A. I did, Sir.

Q. Now what knowledge had you, how came you to suppose, Mr. Arkwright ever got that from you?

A. I have no further knowledge than what I told you, Kay's wife told me.

Q. You, yourself, dont know?

A. I cannot tell which way he got it.

Mr. Serjeant Bolton.—We have that Kay, a clock-maker, that will tell your Lordship how this Arkwright got it from him.

Mr. Erskine.—Your Lordship will observe, No. 6 conveys

It seems that he and Mr. Arkwright happened to be both in Manchester at that time, and that one Mr. Rothwell brought them into company together, in the parlour of a public house in that town. Highs was then making an engine for a gentleman in Manchester, for which he received a premium; and their conversation turned upon engines. He deposes that he told Mr. Arkwright he had got his, the witness's, invention; that he, Highs, had shewn the model to Kay, and explained the method in which he meant to use the rollers, and that he had been told by Kay's wife, that he, Mr. Arkwright, had obtained the information and the secret of the invention from her husband. He subjoins, "Mr. Arkwright and them could never deny

the description of the rollers used by Mr. Arkwright, not in the roving but the spinning machine; and if you add 6, and 9, together, it is the spinning machine when together.

Mr. Lee.—Now, let them spin and rove together, at the same time.

(The wheels, accordingly, were set in motion.)

Mr. Serjeant Bolton.—The one forms the coarse thread, the other the fine one; the same machine will do both things.

Mr. Bearcroft.—What we mean to convey an idea of to your Lordship, is, that that machine which is now worked, if the tin can was absent, is in truth the spinning machine, which is specified under the first patent; the one is fine, and the other coarse.

Mr. Justice Buller.—That is the spinning, I suppose, which is upon the spindle?

Mr. Bearcroft.—Yes.

it." He then says that he told Mr. Arkwright he had heard that he had hired Kay for 21 years, (meaning as it would appear for the purpose of assisting him in making roller spinning machines;) but that he, Highs, should go on with his invention, if he chose;—that he told Mr. Arkwright in what manner he obtained his secret, and that he never would have had the rollers but through him; that, upon this, Mr. Arkwright put down his hand in the way described, and did not reply a word.—That Mr. Arkwright did afterwards say, upon Highs telling him it was his own invention, (probably upon his repeating the observation,) "Suppose it was, if one
 "man finds out a thing, and begins a thing,
 "and does not go on with it, he lays it aside,
 "and any other man in a certain number of

A Juror.—I want to know, whether what he has got upon that wheel, he took out of the can?

Mr. Bearcroft.—The very same; it is done in the same manner, and by the same rollers, and this will do it.

Mr. Erskine.—Break the thread, and put it behind, and the gentlemen will take notice of that part next; my Lord, that is a thing for which he had a patent that is expired; one wheel goes five turns to one of the other.

Mr. Serjeant Bolton.—Q. Now, in fact, with your rollers you did exactly the same thing?

A. I did, Sir.

Q. You roved it, and made the finer thread with your rollers, as this does now?

A. I did.

“ weeks or months has a right to take it up,
 “ and get a patent for it.”

This conversation could, in all probability, have been disproved by Rothwell if it had never occurred; or, it could have been proved by him, that Mr. Arkwright denied what Highs affirmed, and that he had claimed this invention himself. An affidavit to this effect would have had weight with the court, on the subsequent motion for a new trial; but was any such produced? or mentioned? or was the conversation at all alluded to, when the motion for a new trial was made by Mr. Serjeant Adair in the Court of King's Bench on the tenth of November following? No; and though an affidavit made by Mr. Arkwright is mentioned, on making the motion, it is not stated, and does not appear, that this conversation was denied or contradicted by Mr. Arkwright. Mr. Serjeant Adair, in mak-

Q. And your principle was, that your motion went five to one, to the other?

A. It did, Sir, that is my own invention.

Mr. Serjeant Bolton.—You will find, as to that principle of the wheel acting five to one, we are totally left in the dark by the specification.

Mr. Justice Buller.—From the size of the wheels being different, he says this man's invention was of a different proportion of wheels, as to their principle of operation, and there is nothing of that sort in the patent.

ing the motion, states that the widow and son of Hargrave had sworn, on the trial, that Hargrave had used the crank in 1772, and that he (the Serjeant) had the affidavits of Mrs. James, the widow of the other partner, and her son and one or two of the workmen employed under Hargrave and James, to contradict Mrs. Hargrave and her son, and to swear that Hargrave told them that he surreptitiously obtained the invention of the crank from a workman of Mr. Arkwright's. But, does the Serjeant mention whom he had to contradict Highs? No. Does he say he could produce any one to contradict him? No. He says, Mr. Arkwright, besides his own affidavit, *will* (observe the future, why was it not produced then?) procure another affidavit, if the Court thinks right, that will "severally" state the evidence that could have been given to contradict the evidence of Kay, Mrs. Hargrave and others. So that Mr. Arkwright's affidavit upon which the Serjeant moved, *did not*, which, of course, it might have done, state this evidence, nor

Mr. Erskine.—No, my Lord; we say, this difference of wheels, invented by this most ingenious man, was taken by Mr. Arkwright from him, and he claims the whole benefit of it by this patent, and we say, that destroys the whole of his patent.

Mr. Cowper.—Let us not have more spinning than is necessary.

Mr. Serjeant Bolton.—Nor speaking than is necessary.

had he mustered the affidavit of the unknown, or non-existent he mentions, though he had had from the 25th of June to the 10th of November, in which to prepare and bring it forward. Mr. Arkwright might also, in the affidavit he *did* make, have contradicted Higs. This *he did not do*. Thus, the conversation alleged by Higs to have passed between them, in the presence of Rothwell, stands uncontradicted and unimpeached.—There is not a solitary affidavit, on the motion for the new trial, to contradict it, nor does Mr. Arkwright, in his own affidavit, say he *can* contradict it, or, even, that it is not true. I would ask the reader, whether Mr. Arkwright is likely to have allowed Higs to charge him before Rothwell, with surreptitiously and dishonourably possessing himself of his invention, without a single syllable of contradiction, nay, with an acquiescence in it, for, to that does Mr. Arkwright's answer amount, (when he says he had a right to take it up after Higs had laid it aside for a certain time,) unless that charge had been thoroughly and incontrovertibly true.

Again, though the Court refused to grant a new trial, Mr. Arkwright might have indicted Higs for perjury, or conspiracy. But, did he? No. Why not? His great wealth gave him

the means of information, and the ability of adducing evidence. Then, why was he afterwards altogether inactive and quiescent?—He submits in silence, and such are the facts deposed to ;—*Tacendo clamant*.

Highs goes on to say, in his cross-examination, that he made the rollers on purpose to rove and spin cotton, and that he had applied them to those purposes in the town of Leigh, and meant to have made use of his invention when he could get a friend to assist him, but that he himself was, then, poor.—When the water frame, or roller spinning frame, is worked in Court before him, he states that he had done with his rollers exactly the same thing, made a roving from the 'carding, and a finished fine thread from the roving. He adds, that the principle of the machine was, that one pair of the rollers should revolve five times, whilst the other pair revolved once, and that it is *his own invention*.

Kay, in his evidence,* states that Mr.

* The Evidence of John Kay.

John Kay, sworn. Examined by Mr. Lee.

Q. Do you remember, Mr. Kay, being at Manchester races in any particular year, and meeting Mr. Arkwright there?

A. No, Sir, I did not; I was not there.

Arkwright came to Warrington about the time of Manchester races 1767, and requested his assistance in getting some pieces of brass turned. Kay recommended some person or other to do it for him ; but, it would seem, as

Q. What place was you at?

A. At Warrington; at the time of the Manchester races, he came to Warrington.

Q. In what year was it ?

A. In the year 1767.

Q. What was it Arkwright applied to you about, or said to you; how did he introduce himself to you?

A. He comes to a public house, and I comes up there; he said he was going to a wheel-maker, one Edward Ashmore, to get a few wires bended, and he wanted a few bits of brass turned, and asked, where he could get them turned. I said, if he would go down the street, he would meet with a clock-maker, where he might get them done. He came to our house, I was at work, and asked, If I could do those things for him? I said, I would see about it; and I did it; he paid me the next day, and came again, and wanted something else; and when I had done it, he went about his business. The third day, or the fourth, he came again, and wanted something else; I did him those things; and he asked me, when I had done, If I would drink a glass of wine with him in Dale-street? I went with him; in our discourse, he asked me, If mine was a profitable business? I said, it was not: he asked me, what I could get a week? I told him about fourteen shillings: Oh, says he, I can get more than you: I said, what business may you be of. He said, "I was a barber, but I have left it off, and I and another are going up and down the country buying hair, and can make more of it." We were talking of different things, and this thing came up, of spinning by rollers—he said, that will never be brought to bear, several gentlemen have almost broke themselves by it. I said, I think I could bring that to bear; that was all that passed that night. The next morning he comes to my bed side, and says, Do you remember what I told you last night, and

if *another person* was not the object Mr. Arkwright was aiming at, and the affair ended in Kay's doing it for him. The day following, Mr. Arkwright came for something else, and on the third or fourth day he

asked, whether I could make him a small model, at a small expense? Yes, says I, I believe I can; says he, if you will, I will pay you. I went and bought a few articles, and made a small wooden model, and he took it with him to Manchester, and in a week or fortnight's time, I cannot say which, he comes back again, and I made him another.

Q. Before you go farther, who did you get the method of making these models from?

A. From Mr. Highs, the last witness.

Q. Did you tell Mr. Arkwright so?

A. I told him, I and another man had tried that method at Warrington.

Q. You made him a model?

A. I made him two models, and he took one to Preston; Burgoyne's election was at that time.

Mr. Lee.—I understand that was in 1768; you say General Burgoyne's election at Preston, was at that time?

A. Yes—I cannot say I can say any more upon that affair—He took it away with him.

Q. Look at that, was that the sort of model, or was it at all like that?

A. It was with rollers.

Q. It was with double rollers in that way?

A. Yes, with four pair of rollers; this has only two.

Q. Were they fluted?

A. No.

Q. Neither of them?

A. No.

Q. Neither top nor bottom?

A. No.

came again. He then invited Kay to go and take a glass of wine with him. Over the wine, Arkwright asked him how much he could get a week; Kay answered about fourteen shillings, to which Arkwright replied,

Q. Did they turn equally when at work, or one faster than the other?

A. No, one faster than the other.

Q. What was the purpose of that?

A. Why, on purpose to draw cotton out finer.

Q. Where do you live, Kay?

A. I live at Warrington.

Q. You have seen those kind of things worked?

A. Yes.

Q. Was the purpose of your discovery, you had from Highs, to do the like things now in that engine?

A. Yes.

Q. First to rove it, then to make it finer, but to give it a proper consistency?

A. Yes, we had it roved by a second, a hand wheel, at that time.

Q. It was for the purpose of roving, with one roller, and afterwards spinning it with the other rollers?

A. Yes.

Q. After he took your model away, and carried it to Manchester, you had some other conversation with him, do you recollect?

A. Yes, and I went with him.

Q. Did you live with him there?

A. I was with him at the time of the election in 1768; about thirteen weeks with him.

Q. Was you working with him as a mechanic?

A. Yes, I went there to make a clock for him.

Q. Now pray did you ever make any other models for him, or for any body else?

he, himself, could get more than that. Spinning was spoken of. Arkwright said he thought it could not be brought to bear. Kay replied he thought he could effect it. Arkwright came the next morning, and, after some

A. No, not at that time, not till such time as I went to work for him at Nottingham.

Q. You did go afterwards to Nottingham?

A. Yes.

Q. When?

A. As soon as the election was over.

Q. That was in March 1768?

A. It was ended in April, I believe.

Q. Now, how long did you work with him?

A. I cannot tell, four or five years perhaps, I cannot say how long.

Q. Well, afterwards Mr. Arkwright obtained his patent at a considerable distance of time?

A. Yes.

Q. When did you hear he had obtained it?

A. James Hargrave came and told me he had got his patent.

Q. Where is he?

A. He is dead—I could not help myself, you see I did not know any thing at all about it.

Q. You must know, whether at that time it was his own invention, or he had it of you?

A. James Hargrave told me I should have lodged a caveat.

Q. Don't tell what James Hargrave said, you must know, whether it was his own invention?

A. I know very well he did not invent the rollers.

Q. You know very well he did not invent the rollers?

A. No.

Q. On the contrary, you know he had them from you?

A. Yes.

Q. And you had them from this poor Highs?

A. Yes.

conversation, got from him a model, which he took with him to Manchester. A fortnight afterwards, Arkwright came and got another model made by Kay, of the same kind. Kay states, he got the method of mak-

Q. And you told him so ?

A. Yes, I told him so many a time.

Cross-examined by Mr. Cowper.

Q. You lived with him before he gained his patent ?

A. Yes.

Q. Parted with him upon very good terms ?

A. I don't know upon what terms I parted with him.

Q. I don't know whether I have a right to ask you, Did you leave his house without his knowledge ?

A. Yes.

Q. I must not ask you, whether any thing else left his house at that time : You fled from his service ?

A. Yes.

Q. By what apprehension did you leave him, whether well, or ill-founded, I will ask you this, Was there not at least a charge of felony against you ?

A. They pretended so, but they could not find any thing against me.

Q. I ask, whether you did not fly from him under the charge of felony ?

Mr. Bearcroft. I have no objection to your asking him, whether he had stole any body's invention.

Mr. Lee.—Ask him that, who stole the invention ?

Mr. Cowper.—There is a deal of difference between stealing a tankard, when invented, or the invention of making a tankard.

Q. There was a charge against you, well or ill-founded ?

A. I was at Nottingham, and he took my property away.

Mr. Justice Buller.—Who had took them ?

A. Mr. Arkwright had.

ing these models *from Highs*, that Arkwright took one to Preston, at the time of Burgoyne's election contest in 1768, and that he, Kay, went into Arkwright's service at that time, and remained with him four or five

Q. He had taken your goods, had he?

A. Yes.

Mr. Cowper.—What I want to know, which I desire you to give answer to, Had not you run away from his service, upon a charge of felony being exhibited against you?

A. I cannot tell what was charged against me.

Q. You cannot tell whether you run away upon the fear of a charge?

A. He told me something when I came back;—I did run away.

Q. You heard soon after, of this patent, which you knew to be yours, or High's invention, and not Arkwright's?

A. Yes.

Q. And you talked of a partnership, I suppose?

A. Yes.

Q. You made no secret of it?

A. No.

Q. You being a poor man, it put you to no expense to complain to any body about the theft of the invention?

A. No.

Q. Did you apply to any body when the nine causes were here?

A. Yes.

Q. Did you hear them talked of, before they were tried, that they were to be so?

A. Yes.

Q. And did you, before that, publicly complain, Arkwright stole those rollers?

A. Yes.

Q. Were you brought up then?

A. Yes, Sir.

years. Towards the latter end of the period of Kay's services, a charge of felony is made by Mr. Arkwright against him, which, under all the circumstances, is a little suspicious *against Mr. Arkwright*. It seems, that, when the me-

Q. You was not examined upon the first trial?

A. No.

Q. Was you examined upon the second trial?

(No Answer.)

Mr. Lee.—I have sent for the brief, to shew he was put down as a witness.

Mr. Justice Buller.—Kay, what were the things, Mr. Arkwright had taken out of your house?

A. Several tools.

Q. Were they tools respecting this business?

A. Yes.

Q. Was that the subject of the charge against you?

A. Why, I was making another machine in my house to spin jersey, which I thought of while I was at Nottingham, I might complete it, I believe he thought I was making this machine, and that was his intent.

Q. You was making a spinning machine?

A. I was making a thing to spin jersey; before I went to Nottingham, I pulled that thing to pieces.

Q. You don't understand my question. Were the tools, which Mr. Arkwright had taken out of your house, the subject of the charge of felony against you; was it upon that account, he said you was to be charged with felony?

A. I believe he did; he told my wife I had stole things from him.

Q. Did he take those things, as the things stolen?

A. No; I brought them out of Lancashire.

Q. Tell what it was Mr. Arkwright took away.

A. Several tools, compasses, pliers, and vice, and other things.

Q. Did he take any thing besides tools?

thod of spinning by rollers appeared likely to answer its intended purpose, Kay began to bestir himself, and claim some of the expected profits ; for, he says something to Hargrave which makes the latter reply, he, Kay, ought

A. Yes, a pair of sleeves, a spying glass I had, and locks and brass wheels I had brought with me, to make a movement with, from Lancashire ; I had not time to make it, and I brought them with me.

Q. What was the spying glass.

A. That was a small spying-glass, which drew into four joints, that was mine, I brought it from Nottingham.

Mr. Erskine.—It is my duty in this place to answer, I have now in my hand my brief, which I had in 1781.

Mr. Serjeant Adair.—It is not properly evidence.

Mr. Erskine.—I can tell my Lord and the Jury, why he was not called.

Mr. Justice Buller.—You had better not state it.

Mr. Erskine.—You will observe the objection to my stating it, comes from Mr. Serjeant Adair.

Mr. Lee.—That it is not now evidence, is objected—the observation is enough to obviate that.

Mr. Justice Buller.—Surely.

Mr. Lee.—Q. Did Arkwright ever pretend to prosecute you for this pretended felony.

A. Yes, he offered to do it,

Q. Did he do it ?

A. No, I never saw it.

Mr. Justice Buller.—Q. When did you get back to Nottingham again ?

A. I never went to Nottingham again.

Mr. Lee.—Q. It is suggested to me : Did Mr. Arkwright require you to enter into any obligation or bond, not to do any thing in this way of business ?

A. Yes, at the time I was at Preston with him.

Q. In the year 1768 ?

to have lodged a caveat against the granting of Mr. Arkwright's patent, *his first patent*, which was solely for spinning by rollers. From what passed between Kay and Hargrave, it is clear that Kay intimated a wish, or intention, to have part of the anticipated gains, indeed, he appears to have talked openly of a partnership with Mr. Arkwright. Now, it is obvious that Kay's claim to a partnership rested upon his having communicated to him, Highs' method of spinning by rollers. Kay was becoming a troublesome servant, and, at this critical moment, comes the charge of felony from his master, which drives him back again to Warrington. Kay also states that Mr. Arkwright got from him a bond not to make any models or machines for any other persons, but to continue in his service a certain number of years.

A. Yes.

Q. After you had given him that model?

A. Yes.

Q. Was he then well to live, or in a situation not much better than you were?

A. He was a poor working man,

Q. He was?

A. He was, and I too; he got assistance to join him in this affair, and I agreed to work for him as a servant.

Q. He got a bond, did he?

A. Yes.

Q. What was it for?

A. To serve him so many years.

The substance of Sarah Kay's evidence* is, that her husband made a machine for Highs so early as the beginning of 1763. This was when they first began to have transactions together about the machines, as appears by the cross-examination. She also proves that her husband made a model for Highs, and, that afterwards, about the time of Burgoyne's election, he made one for Mr. Arkwright; that Mr. Arkwright and her husband were together all the day over about that time; that Mr. Arkwright took the model away with him and, soon afterwards, came and got another made, and that this happened in 1767. This is quite confirmatory of the testimony of Highs and her husband.

* The Evidence of Sarah Kay.

Sarah Kay, sworn. Examined by Mr. Erskine.

Q. You are the wife of the last witness?

A. Yes, last Michaelmas it is twenty-six or twenty-seven years since.

Q. You remember, then, I suppose, when he worked for Highs?

A. Yes, I remember his making a small model.

Q. When did you see or know any thing about rollers, by which cotton is spun?

A. That was about the beginning of the year 1763.

Q. Where did you first see it?

A. At a place called Leigh.

Q. Who had them?

A. Mr. Highs had them.

It will appear, in a later part of this work, by the deposition of Thomas Leather, which was taken on the 29th of August 1823, he being then 69 years old, that, in the years 1763, 1764 and 1765, Thomas Highs, a reedmaker, and John Kay, a clockmaker, were living only two doors from each other; that Highs lived at the most southerly house, one Smetham, a glass maker, at the next, northward, Leather and his family at the next, and Kay at the most northerly one; that, in those years, Highs *was much employed in planning and making machines for spinning, that Kay worked for him*, and that the latter removed to Warrington about 1766. Highs says, he made spinning rollers in 1767, and that he employed Kay to

Q. Do you remember your husband getting any models made of those?

A. That one I remember, and one that he made for Arkwright—He made one for Highs, and then he made one for Mr. Arkwright.

Q. Do you remember when he made the model for Highs?

A. In the year 1763.

Q. Do you remember when he made the model for Arkwright?

A. At the time of Burgoyne's election.

Q. How do you know it was for Arkwright he made the model?

A. My husband told me so.

Q. You have seen Arkwright and him together?

A. Yes, all the day over.

Q. About the time he was getting this model made?

A. Yes.

make him his first model. This, 'Kay might have done before he left Leigh, for, Leather does not say he left Leigh in 1766; he says *about* that time, and that while he lived in *The Walk*, namely, *until sometime in 1766*, Highs and Kay were living there. These dates he fixes by his own age and the death of his mother, the date of whose burial I have extracted from the parish register, and inserted at length, along with his deposition, in a subsequent page. Neither does Highs say he got Kay to make him the model in 1767; he says "I made spinning rollers *myself* in 1767." Kay states that Arkwright called on him and obtained the models from him about the time of Manchester Races 1767, (these Races were on

Q. And had he this model at the time, to take with him?

A. Yes, he asked whether he would make him a small model at a small expense.

Q. You saw them together all day?

A. Yes, after he had made the first model, he took it off with him somewhere or other, and came back to my husband, and asked if he could make another.

Q. He took it off somewhere or other, and came back to your husband, and asked him if he could make him another?

A. Yes.

Q. Was there another made?

A. Yes.

Q. Did you see this model of the rollers for drawing the cotton thread?

A. Yes, for spinning.

the 8th, 9th, and 10th of September,) and of Burgoyne's contest at Preston, which was early in 1768. So that, Leather and others proving that Highs and Kay were living next door neighbours from 1763 to 1767, the former proving that in that time Highs was much employed in making and planning machines for spinning, and that he employed Kay as his workman; Sarah Kay proving that her husband made a machine for Highs in 1763, Highs proving that *he* made spinning rollers in 1767, and that "when he *first* conceived the invention" he had employed Kay to make him a model of the rollers, and Kay's proving that he had done so, and had also made models of these rollers for Arkwright about the time of Manchester races in September 1767, and of Burgoyne's contest at Preston in 1768; Arkwright's taking Kay into his service, and getting from him a bond not to make machines for other persons, and also taking him with him to

Cross-examined by Mr. Chambre.

Q. You are sure it was in 1763?

A. In 1763, my husband and Mr. Highs began it.

Mr. Erskine.—Q. When was the first model you ever saw?

A. That my husband made for Mr. Highs.

Q. When was that?

A. In the year 1763.

Q. Now, when was it he made the model for Arkwright?

A. In the year 1767.

Nottingham, and there establishing the roller spinning, are all circumstances perfectly consistent. They mutually confirm and establish each other. Will Mr. Mc. Culloch say, the whole story resting, as it does, on such various testimony, and coming from so many sources, is, totally and entirely, a fabrication? or, how much will he allow to be true? Independently of the testimony of Highs and Kay and his wife, even the other facts would lead us to the almost inevitable conclusion, that some secret and mysterious cause had been at the bottom of Mr. Arkwright's hastening to Nottingham with Highs' workman, and getting a bond of service and secrecy from him. The latter circumstance is never attempted to be denied in any stage of the cause, or in any part of Mr. Arkwright's defence. But, when these various concurring incidents are joined to the direct testimony of Highs and Kay and his wife, how irresistibly strong do they make it!

I shall only add to this part of the argument, the observations of Mr. Bearcroft, upon their evidence, of which the reasoning is so pointed and effective, that I should injure the cause I espouse, by substituting any remarks of my own.

“ And now I come to a very serious
 “ question indeed, I have called to you a
 “ witness, a man of unsullied character, (Mr.
 “ Highs,) who was bred up in this business,
 “ who, upon his oath positively tells you, he
 “ himself invented rollers exactly like those,
 “ and that they were employed in the same
 “ business, that he communicated it as a secret
 “ to one Kay; Kay is brought, and he is
 “ confirmed by his wife, and he tells you this
 “ concerning Mr. Arkwright, and I will not be
 “ so polite now, as I am supposed to have
 “ been before, for I have no difficulty to say,
 “ that Mr. Arkwright stole this invention.

“ Gentlemen, if you believe the man, it is
 “ the clearest of all proofs—Highs invented
 “ it, he communicated it to Kay—Kay tells
 “ Mr. Arkwright of that—Arkwright is not
 “ struck with it at first, he goes to bed, and
 “ his good genius upon his pillow makes him
 “ think of it; by the bye, many manufacturers,
 “ it has been proved, have, in the day time
 “ gone to bed, and shut up their windows, to
 “ think the more intensely upon these subjects,
 “ and by the morning, (for this is the only
 “ merit of Mr. Arkwright, *by the morning*) he
 “ certainly had the ingenuity to be satisfied
 “ in point of fact of the value of this inven-
 “ tion. That is a merit. Being in possession

“ of that opinion, what does he do? He
 “ comes to the man that told him that Highs
 “ had found out this. What does he do with
 “ this man? He takes him for a servant,
 “ keeps him two years, employs him to make
 “ several models of that which is now called a
 “ new invention, and made the foundation of
 “ this patent. How is all this evidence to be
 “ got rid of? By a cool observation of the
 “ Counsel at the bar : Pardon me, Gentlemen,
 “ for using the expression, when it comes to be
 “ examined, it is perfectly ridiculous ; there is
 “ this Highs, and Kay, and his wife, three
 “ in all, to confirm each other in this. What
 “ is the answer to it that is given by the
 “ Counsel? Oh! Mr. Highs is a good honest
 “ man, says the Serjeant; if he stood by
 “ himself, we could not attack his credit, but
 “ *noscitur ex sociis*, says my learned friend, but
 “ he keeps such horrid company—That com-
 “ pany Mr. Arkwright was glad to borrow
 “ from him and keep two years—My learned
 “ friend says, Oh! he is a sad man, a felon
 “ that committed larceny, and fled from prose-
 “ cution for fear of Mr. Arkwright. They
 “ chose to use that weapon, *that two-edged*
 “ *sword*, Mr. Arkwright frightened this fellow
 “ out of the country, I doubt it not. There is
 “ not a more miserable or dangerous situation
 “ for a poor man, than to be in possession of a

“secret, of which a powerful and rich man
“dreads the discovery.

“Gentlemen, history furnishes instances,
“where men have lost their lives for being in
“possession of royal secrets; many a person
“has been driven out of the country by the
“power of a private person, for the same
“reason. The learned Serjeant said, he dared
“not to return, he dared not to face Mr. Ark-
“wright. What has he done to-day? Has
“he not faced him, and dared to provoke him,
“and given evidence? if Mr. Arkwright shall
“think it proper, has he not now an opportu-
“nity of prosecuting him? yet the man dares
“to present himself face to face; notwith-
“standing which, it is said, this man is not to
“be believed. I would not have you, sitting
“there, believe what every man swears; it is
“not fit you should. It is not a simple, single
“proposition of fact, which this man swears,
“he tells you a fact, which, if untrue, might
“be contradicted, and might be proved to be
“untrue. He says, two years he was em-
“ployed in making models in Arkwright’s
“house. Why take John Kay to be his ser-
“vant two years, except it be for this? those
“facts are clear, and cannot be done away by
“such kind of evidence. Oh! but, says the
“learned Serjeant, you must consider, before

“ Mr. Arkwright could get his patent, he must
 “ take his oath he is the inventor. What the
 “ man means when he takes an oath that
 “ he has found out an invention, I cannot tell,
 “ unless it was that he found it from Mr. Kay,
 “ therefore, he might think himself the
 “ inventor. But let Mr. Arkwright’s oath
 “ upon a proper occasion be of what weight it
 “ may, permit me to remind you, Gentlemen,
 “ of the oath you have taken, namely, to try
 “ this cause upon the evidence; now, no man
 “ can by law give evidence for himself, and
 “ therefore the oath of Mr. Arkwright is
 “ totally to be laid out of the question. But
 “ says the learned Serjeant, it does not depend
 “ upon that; Mr. Arkwright being the first
 “ mechanic in Europe, his fame is immortal,
 “ and the man that contradicts him, and
 “ charges him with an immoral action, must
 “ not be believed.

“ For a moment, Gentlemen, let us go
 “ back a little in point of time. There was a
 “ time, and it now behoves us to remember
 “ it, when Mr. Arkwright and poor Highs
 “ were equals. Equally rich and poor,
 “ they lived together, and were of equal
 “ credit; and how do we find that Mr. Ark-
 “ wright is this great mechanic, that the king-
 “ dom never saw the like; all I have learned

“ about him, is, he is mechanic enough when
 “ he finds any person in possession of a good
 “ invention, he is prudent enough to seize it,
 “ you never find him a practical mechanic,
 “ but since he has found this out from Kay, he
 “ has thought it worth his while to nurse
 “ and attend to it.

“ Gentlemen, three witnesses have posi-
 “ tively sworn to a fact, which, I trust they
 “ have a right to be believed in.

“ Gentlemen, I don't find the learned
 “ Serjeant was surprised by this evidence, no
 “ man of common sense will believe Mr.
 “ Arkwright is the only one *in England*, that
 “ never heard the accounts spread abroad by
 “ *every man* that speaks upon the subject, that
 “ he did get this from Highs, by means of Kay ;
 “ it is a notorious story in the manufacturing
 “ counties ; all men that have seen Mr. Ark-
 “ wright in a state of opulence, have shaken
 “ their heads, and thought of these poor men,
 “ Highs and Kay, and have thought too, that
 “ they were entitled to some participation of
 “ the profits. What is the consequence of this ?
 “ Mr. Arkwright must have expected this
 “ evidence—where are the witnesses that tell
 “ you Mr. Highs has a bad character ?—where
 “ are the witnesses that tell you Kay and his

“ wife are of bad character ? or that either of
 “ the three is not entitled to belief upon their
 “ oaths.

“ Gentlemen, I trouble you with these
 “ observations, because this is the evidence
 “ that goes to a very important and decisive
 “ point.”

I apprehend that if any thing could have made Mr. Bearcroft's argument more conclusive than it is, if any thing could have added conviction to the minds of the Jury, which their verdict proves they did not need, it would have been the evidence of Thomas Leather, which, in respect of circumstances and probabilities, so greatly strengthens and confirms the other three. That Mr. Serjeant Adair would depreciate the evidence against him, as much as he could, is to be expected—he was discharging his duty to his client, and was obliged to *say something*; but, that an Edinburgh Reviewer, a man, occupying, with regard to the question he is examining, the situation of the Judge, should coolly ask the readers of that publication, to believe that three persons, upon whose characters there is no imputation (that spoken of respecting one of them, applying itself, rather, in fact, to Sir Richard Arkwright) unrefuted as they remain

to this day, were guilty of wilful and corrupt perjury, and that the association who brought them forward, gentlemen as respectable as Mr. Mc. Culloch, were guilty of subornation of perjury, is a degree of effrontery not often to be met with in a respectable publication. Mr. Arkwright had thousands depending upon this trial, let Mr. Mc. Culloch shew, or reasonably suggest, what motive so powerful, or at all powerful, was operating on the minds of the witnesses.

I have, now, to thank Mr. Mc.Culloch for enabling me to make a trifling discovery, and which, if I do not mistake, will constitute another argument on my side of the question. On searching at the patent office, in London, I find, that in taking out his first patent, which, as I have elsewhere stated, was exclusively for the rollers, Mr. Arkwright describes himself as "Richard Arkwright, of Nottingham, clock-maker." This designation both surprised and amused me. In no biography of him that I had read, in no enquiries that I had made, had I found that this had ever been one of the occupations of his life. Mr. Arkwright a clock-maker! who in the world ever before heard that he had, at any time, exercised that employment?—Perhaps Mr. Mc. Culloch, who has such "access to know," and to his "family," can inform us at what period of.

his life it happened, in what town he carried it on, and for what length of time he was engaged in it. One should think the chief occurrences of the life of a parent or immediate ancestor, particularly in the instance of a man so celebrated as Sir Richard, would be well known to his family. Were they ignorant of this circumstance, or did they keep Mr. Mc. Culloch in the dark with respect to it? But, how came Mr. Strutt, how came Aikin and Enfield, how came Mr. Bannatyne to know nothing of it? Have I extracted a curious fact from musty documents, after a repose of nearly sixty years, of which Sir Richard Arkwright's biographers, and his own family, have always, hitherto, been profoundly ignorant? No. He never was a clock-maker. I can safely venture to say, he never either made a clock, or superintended the making of one, in his life. I have only brought to light, a false designation of himself, which was meant to further, and promote his great object. The rollers we speak of, it is well known, are turned by clock-work, and for a machine of that kind to have been invented by a *clock-maker*, would seem so natural, and so plausible, as almost to prove, *ex vi termini*, that he, when so designated, was the inventor of it. It was adopted to conceal and gloss over, any defect, or rottenness, in the substratum of the

affair. A reader of the specification on finding that a contrivance, of which one of the leading features was wheels and clock-work, had been invented by a hair dresser, might have been rather staggered at the oddity of the circumstance, and led to mention it as singular, and enquire farther about it; but, that a machine of that nature should have been invented by a clockmaker,—what so likely? what so probable? Mr. Arkwright had left his native county, and removed to Nottingham, a distance of ninety miles, and, if we consider the relative state of intercourse, and facilities of communication, at that day as compared with the present, it may be considered, for all purposes of the diffusion of news, or intelligence, as more than twice that distance removed. He had Kay for a servant, bound to him, by the obligation of a bond, and, to a certain extent, embarked in the same bottom with himself. He might safely presume, that the knowledge of what he had been, in his previous life, would not transpire, and that the talk of the neighbourhood of the spot which he had left,—the report of what had passed, with respect to Higs, or, even the knowledge that such a man existed at all, would never penetrate so far. He could not see into futurity, he did not know to what great results the invention would lead, nor the scrutiny

which the matter would afterwards undergo. If the invention had been his own, why resort to falsification about it? It was said, not long since, by the chief Justice of the King's Bench, "If men will trifle with truth, we are bound not to believe them." The fact is, he wished to appropriate it to himself, and, with that view, did not shrink from enrolling among the public records of the kingdom, a false description of himself, which might serve that purpose. Having a great object in view, he did not scruple to masquerade in the character and trade of John Kay. It was an ingenious artifice, though it savours rather of cunning than wisdom, and is very much akin to another which he tried on obtaining his second patent, namely, to make the specification so obscure, that, when his patent had run out, and expired, no one but himself could make any use of it, and, by that means, to keep the secret of his wealth and fortune in his own hands.

I have always understood it to be a maxim in casuistry, that, when fraud and dissimulation appear in the subordinate circumstances of a transaction, they involve the destruction of the entire case. Truth disdains to avail itself of deceit, and he who would make use of the latter in minor matters, it is

considered, would not scruple to avail himself of it in those of a more important character. The principle is so far sound, that it operates to the support and encouragement of truth,—that it punishes the deceiver for his misconduct, and makes men fear to avail themselves of an auxiliary so slippery and fragile.

Mr. Mc. Culloch allows that Kay assisted Mr. Arkwright in making his first model; he says, “Not being himself a practical mechanic, Arkwright employed a person of the name of John Kay, a watchmaker, at Warrington, to whom we shall afterwards have to refer, to assist him in the preparation of the parts of his machine. Having made some progress towards the completion of his inventions, he applied, in 1767, to Mr. Atherton, of Liverpool, for pecuniary assistance, to enable him to carry them into effect; but this gentleman declined embarking his property, in what appeared so hazardous a speculation, though he is said to have sent him some workmen, to assist in the construction of his machine.” Now, if Mr. Arkwright was the inventor, why did he not employ some of the Bolton clockmakers? Why go all the way to Warrington, a distant town, to find a clockmaker? Warrington is eighteen miles from Bolton, and, if there had

been no clockmakers to his mind at the latter place, he might have found them at Manchester, which was only eleven miles distant, and, consequently, seven miles nearer him. Is it likely, or probable, that Mr. Arkwright, living in Bolton, would go to Warrington, a distance of eighteen miles, with no other view than that of getting half a dozen rollers and wheels made, when he could have had them just as well done in the street in which he lived, or at Blackburn, Bury, Wigan, Leigh, or Manchester?—all of them towns considerably less distant.

It is now about eighteen years since I was first informed, by some of the old inhabitants of Leigh, that Mr. Arkwright, coming frequently to that place, learned that Highs had invented a spinning machine, and that Kay had assisted him in making it; that Mr. Arkwright, upon this, sought out Kay, and followed him to Warrington. From the evidence given and above stated, we find that Mr. Arkwright introduced himself to Kay, by employing him to turn some pieces of brass, and, after having thus become acquainted with him, and after having called upon him three or four times, he took him to an inn, where, after *winding up* the poor clock-maker with a bottle or two of wine, he *set him a-going*, and obtained Highs' secret.

Aikin and Enfield, who wrote soon after Sir Richard's death, say, "Kay and Arkwright applied to Peter Atherton, Esq. now of Liverpool, to make such an engine, but from the poverty of the appearance of the latter, Mr. Atherton refused to undertake it, though afterwards, on the evening of the same day, he agreed to lend Kay a smith and watch-tool-maker, to make the heavier part of the engine, and Kay undertook to make the clockmaker's part of it, and to instruct the workman." If Mr. Arkwright had been the inventor, *he* could have instructed the workmen himself, and the engine might have been made by them, under his superintendence, without the assistance of Kay. To take Kay with him to a place where a number of practical mechanics, (Liverpool is celebrated for its manufacture of watches,) were to be met with, was carrying coals to Newcastle. Why should he have done so, unless his assistance, in some other capacity than that of a mere workman, was necessary? Here, then, are Mr. McCulloch's own authorities, Aikin and Enfield confirming the account given by Highs and Kay, upon the trial. What possible inference can be deduced from it, but that it corroborates their testimony and conduces to establish the fact that the former had shewn to the latter the method of constructing the rollers,

and that he had again, at the instance, and under the direction of Arkwright, shewn that method to Mr. Atherton's workmen.

To these observations I will only add, that in the neighbourhood of the place where the events spoken of occurred, and among the persons who were contemporaries and acquaintances of Mr. Arkwright, Highs and Kay,—persons having no more than myself the slightest interest in the matter, one way or the other,—the regular, uniform, unvarying, and undoubted account has been, that Sir Richard Arkwright possessed himself of the secret of the roller spinning in the manner mentioned. It is very well known and remembered, that Highs was accustomed to keep his machines, and the room where he worked, about the period in question (1767 or 8,) at a second house to which he then removed, in Bradshaw-Gate or Windmill-Lane, Leigh, under lock and key, and that none but his most intimate friends were allowed ever to enter it. The secrecy he observed, and the apparent mystery of his proceedings, drew the curiosity of the people of that day, and led them to inform themselves, with eagerness, of all that related to these concealed machines, and, when they found afterwards Mr. Arkwright in possession of a new and curious machine, when they

recollected that Kay had worked for Highs, and when they found that Mr. Arkwright had taken Kay with him to Nottingham, it brought with it such a strength of conviction to their minds, as caused the fact stated never to be, so far as my knowledge goes, for a moment doubted or questioned by any of them.

Such are the grounds, upon which my statements, respecting the matter in question, rest. These, Mr. Mc. Culloch, in the genuine, dogmatic, reviewing style, denominates, "rash and ill-considered." It would ill become me, to contradict him in this point, or to characterize his own, in general terms of the like kind; and, instead of so doing, I shall endeavour, with humble assiduity, to enable the reader to perform that office for me, and to judge for himself what is the appropriate epithet, that ought to be applied to them.

He appears to have concocted his article from the following materials.—"The Case of Richard Arkwright and Company," published in 1782,—The Beauties of England and Wales,—The Supplement to the Encyclopædia Britannica,—Aikin and Enfield's General Biography,—Baines' History of Lancashire,—An Essay on the subject, published by John Kennedy, Esquire, of Manchester,—

garbled and misrepresented extracts from the Report of the Trial in the Court of King's Bench, in June, 1785,—and his own unsupported assertions.

The first in point of time, and what I consider the most direct and least *second hand* authority, which Mr. Mc. Culloch has mentioned, or referred to, in support of his position, is, "The Case of Richard Arkwright and Company." This Case was read in evidence, on the trial, in June, 1785. As it seems to be the main source from which so much misrepresentation and error has been disseminated, it is desirable to examine the nature and origin of it, in order that we may allow it all the weight in the argument to which it is entitled.

Sir Richard had so darkly and obscurely worded his specification, that his opponents were able to bring a respectable body of evidence to prove that the machines could not be made from the directions it afforded. His object was, to keep to himself his machines and his monopoly, after his patent was expired, by the impossibility of others constructing machines of the like kind from the instructions given in his specification. He had, with the view to puzzle and confound them still more, in order to make them stumble

at the very threshold, inserted, at the beginning of his specification, two instruments, the first a Cog-wheel and Hammer, described as a finer of the articles which were to be prepared for dressing. The only effect of this when used, as proved by witnesses on the trial, would be so far to bruise the seeds, &c. among the cotton, that it would be next to impossible afterwards to pick it clean, and that great difficulty and inconvenience would be found in afterwards roving and spinning it. And, as to the second, a witness proved that, during the seven years he had been in Mr. Arkwright's service, he had never seen it used in his manufactory, nor, indeed, any where else. These instruments he had not distinguished and described as being inapplicable to the manufacture of cotton; so that a spinner or manufacturer, desirous of fabricating such cotton yarn, or twist, as Mr. Arkwright had been in the habit of bringing into the market, and consulting his specification after the expiration of the patent, with the view of being enabled to produce the same article, would have fallen into a complete snare, and spoiled his material. Nay, more, Mr. Arkwright inserted as number 8, in the same document, a machine neither applicable to, nor used in, the cotton or any other manufacture,—a sort of *lusus nature*, which cuts a figure where he has placed it, but

no where else; it spins out the specification, but is of no use in spinning any other matter whatever.

The patent act was passed with a view to encourage and promote the arts, by giving to ingenious men the benefit of their inventions for a limited time, stipulating only, that they should be so clearly described and explained by an enrollment to be made among the records of the kingdom, that the public, at large, might have the advantage of them when the period of the monopoly was expired. It was intended to protect the artist from spoliation and piracy, and, at the same time, to preserve to his country—to perpetuate and to snatch from oblivion what was calculated to be serviceable to mankind. The golden visions that had begun to dance before the eyes of Mr. Arkwright, would not allow him to accept the terms of reciprocity which the regulations of the law held out. He wanted its guarantee for the monopoly, without the performance of the condition on which, only, it was to be granted. He wanted to keep his secret still in his own power, when the protection afforded by the law had expired; at all events, it was upon this point that the two trials in July, 1781, and February, 1785, turned. The action tried in the former year against Colonel Mordaunt,

who, though a man of family, was not a man of much fortune, and had not mended it by engaging in the manufacture, was brought forward first. Mr. Bearcroft says, it was thought, from his temper, and the lightness of his purse, out of all the nine causes, the fittest to be put in front. Colonel Mordaunt's *sole* defence was the insufficiency of the specification, and the Jury found the patent to be of no validity, because, Mr. Arkwright, "*instead of disclosing his invention, did all he could to hide and secrete it.*" It is observable, that the non-originality of the inventions, formed *no part of Colonel Mordaunt's* defence. Mr. Bearcroft, Colonel Mordaunt's counsel, himself says so, and it is admitted by Serjeant Adair. It was part of the case of some of the *other* defendants, but, as Mr. Arkwright, after losing Col. Mordaunt's action, withdrew the other eight, they could not by *possibility* go into it.

When, simply, on the ground of the insufficiency of his specification, he had lost his patent, under feelings of great disappointment and vexation, he applied to Parliament to guarantee to him, by an act of the legislature, that privilege to which the Court of law had declared his conduct had disentitled him. In furtherance of this object, and, with a view to

influence and predispose the minds of the legislative body in his favour, he issued the "Case" above mentioned. In the commencement of it, after some general observations, he states, that Parliament has occasionally secured to men of skill and ingenuity in mechanics, and their families, the benefit of their inventions beyond the limit of letters patent, and he refers to three Acts of Parliament, which he specifies at the foot, in support of his assertion. He then draws a picture of the many fortunes that had been sunk, families ruined, and lives spent in the prosecution of schemes from which no adequate advantage had been reaped, and adds a high-flown compliment to the "wisdom, liberality, and munificence of a British Parliament." He tells them, that the wealth, power, and grandeur of the kingdom has arisen from the mechanic arts, and that the encouragement of Parliament has been one of the causes of their flourishing. After enumerating several attempts at spinning which had failed, he says, "*that after many years intense and painful application, he invented, about 1768, his method of spinning cotton, but upon different principles from any that had gone before it.*" He also states that, in consequence of the imperfection of the engines for preparing the materials, he turned his attention to the construction of engines for that purpose; and, in the pursuit, spent several

years of intense study and labour, and, at last, *produced an invention for carding and preparing the materials.*" He states, that more than five years had elapsed from the obtaining of his first patent, and more than £12,000. had been expended in machinery and buildings, before any profit accrued to himself or his partners; that his "machines are the most perfect, useful, and, perhaps, the most curious, ever produced by man,"—that they, (himself and partners,) at first, wove the yarn into stockings, which succeeded, and that they endeavoured to prevail on the Lancashire manufacturers, to weave it into calicoes, but that they refused,—that they had other difficulties to encounter,—that he had sold several of his patent machines to others, and that he and his partners had expended between £30,000. and £40,000 in buildings, with reference to them. He adds, that his sole reason for wording his specification so darkly, was, that foreigners might not get the benefit of it. He insinuates, it was his patriotism and his benevolence, towards his rival cotton-spinners, that induced him to endeavour to prevent foreigners from using his patent machines, and though, it is clear, the same obscurity and mystification, which would render the description of his machines useless to foreigners, would have the same effect with respect to his countrymen, and render his ten-

der mercies towards them unavailing, he lets that difficulty shift for itself, and only proposes to the members of Parliament a curious little riddle, to exercise their ingenuity upon.—Oh! if you could but find out some plan by which we, English, could keep our machines to ourselves, what a good thing it would be. I tried to do it, but I am suffering for my benevolence towards my fellow-countrymen, in making the attempt. I am a second Prometheus chained to the rock, for my philanthropy. It is true, the benefaction I gave, or intended to give, was not available to them. I thought of shutting out our enemies, but it so happened that in shutting out enemies, I shut out friends too, *and I alone*, should have remained in possession of the city and the treasure. It would have been rather unfortunate for those I meant to serve, but I did it for the best.

He goes on to describe the attempts that had been made to rob him of his inventions, to profit by his ingenuity, seducing his servants, and a great many other hardships and sufferings. And that *he bows with the greatest submission to the Court and the verdict against him* ;* that he

* He afterwards brings another action, with the avowed and self-evident intention of upsetting the decision of the Court and Jury, to which he bows with so much submission.

has, "after nearly twenty years of unparalleled diligence and application, by the force of natural genius and unbounded invention, excellencies seldom united, brought his machines to perfection, on principles as new in theory as they are regular and perfect in practice;"—that "they do him honour, and will be an honour to his name and country," and finally he begs the legislature to pass an Act of Parliament to guarantee to him his last patent. It was the specification,—the unhappy specification,—which he had made, so that nobody could understand it, all for the best, or else he should have had no need to apply to them.

Among the accounts given of the misfortunes of the early projectors of spinning machinery, he mentions that Hargrave had taken out a patent for a machine, at Nottingham, but, that an association had been formed against him, that had cruelly wrested it from him,—thereby assimilating Hargrave's case to his own, and making them both, in the eyes of the public, while trying to benefit themselves and their country, the victims of conspiracy. This is perversion of fact and exaggeration. I shall, in a subsequent page, shew, that Hargrave could not have sustained his patent, for the same reason that Sir Richard could not. It was then the law, and probably is yet, that if

a patentee made an improvement in an old machine, and did not take out a patent for *that improvement*,—that is, if he described the old machine and his new improvement, in his specification, as one single machine, invented by himself, he made an allegation which he could not support, and, consequently, his patent was bad. If he built a superstructure on an old and known building, and called the whole his own, he asserted a falsehood, and the law would not protect him. The association against Hargrave, could have proved, that the essential part of the machine he had improved, the primary idea and conception of it, had existed for some time previously to the taking out of his patent ;—that the ruder, and less perfect machine, had been known long before. This he knew, himself, and it was therefore he shrunk from litigation; it was *on this account* that it was wrested from him. He suffered a thing to be wrested from him, that, with the exception of some improvement, he might have added, never belonged to him.

With respect to the probability of the Lancashire manufacturers refusing to buy Mr. Arkwright's yarn, when it was of a better quality, *and cheaper* (as he wishes it to be understood) than the yarns they were using, who can believe that such was the case? I think, no manufac-

turer, no spinner, no man of business will do so. A superior article, "the most excellent yarn," as Sir Richard calls it, at a lower price than the yarn then in use, so much lower "as to make so considerable a saving to the public, as several hundred thousand pounds per annum," would have *commanded* a sale amongst the Lancashire manufacturers. The probability is, that "the great difficulty the proprietors found to introduce it into public use," arose from the extravagant price they demanded for it. Is it consistent with the first and simplest principles of political economy, to say nothing of common sense, to believe that the consumers of yarn, would purchase a far inferior article at a high price, in preference to Sir Richard's "most excellent" article at a low price? and yet, Mr. Mc. Culloch, a lecturer on political economy, says, he believes this to be the fact, (*Edinburgh Review*, page 13.)—The truth is, that Sir Richard wished the saving of "several hundred thousand pounds per annum," to be saved in his own pocket, and in the pockets of his partners, rather than in those of the manufacturers and the public at large. This was natural; but he might carry the matter too far. If, knowing he had a good article to dispose of, he raised his prices disproportionably high, there would

be no need of cabal to prevent his making sales.*

So much for the exaggeration, and improbability of the statements, contained in this publication.

In the mode of investigation adopted by the Civil Judicature of this country, it is a general rule, admitting of few exceptions, that no person shall be allowed to give evidence in his own behalf. Experience demonstrates the wisdom of this regulation, for it unfortunately happens that, amongst a great part of mankind, a sense of duty and justice is too feeble to contend with the temptations of self-interest and gain; and it is found more expedient to labour, occasionally, under a want of evidence, than to receive

* It may appear inconsistent, that, if it was Mr. Arkwright's object to keep his patent machinery to himself, he should sell the right to use it to others. But, his permitting others to use it, which he did, on payment of an annual sum, was considerably posterior in point of time, to the enrollment of his specification. He found, *at a later period*, it was more conducive to his own interest, to allow others to use his machinery, on payment of an annual premium; but, that his original intention—his design *when he enrolled the specification*, was what I have stated, is made certain, independently of the obscurity and treachery of the specification itself, by the evidence of W. D. Crofts, a witness examined on the trial, who proved that, when Mr. Arkwright applied to him and gave him directions to draw up the specification for his patent, he told the witness he meant it “*to appear to operate* as a specification, but to be as obscure as the nature of the case would possibly admit.”

and act upon it when coming through suspicious or unsound channels. If we adopt this rule and apply it to the "Case" under consideration, this leading authority of Mr. Mc. Culloch dissolves away and vanishes. It is Mr. Arkwright's own testimony delivered for the purposes of his personal advantage.

But, what is the essential character and description of the publication itself? It is evident, that, from the occasion and cause of its being issued, from its entire drift and tenor, it is to be considered as a soliciting, and canvassing address, and, by no means, a cool and dispassionate narration. It was the interest of its author to state how precarious and uncertain the success of many inventions turns out to be; how many ruin themselves and their families by devoting themselves to the pursuit of such objects, in order to benefit the public, and he, of course, dilates largely and pathetically on the subject. He draws an exaggerated picture of the misfortunes that have attended others, in pursuing the construction and improvement of a kindred machinery to that claimed by himself, and details his own difficulties and misfortunes in strong colours. The object of all this, is to win over to himself the feelings of the public and the Legislature. The "Case" is, in effect, an address to the feelings,—a declamatory supplication

on his own behalf,—a representation, that, but for one unfortunate circumstance, 'the mystifying of his specification, which he did *for the good of his country*, he should not have had occasion to apply to Parliament: that his merits are paramount, but, that in consequence of a neglect of technicality, he has lost the benefit of them. He tells the legislature what the mechanic arts have done for the grandeur, &c. of the country under their patronage, and solicits an extraordinary extension of it to himself. It is an effort out of the common course, to retrieve and recover back his patent machinery,—the creator and augments of his wealth.

And is this the fountain we are to go to for accuracy and certainty, with respect to historic events? Is this the pure limpid source, so free from the impregnation of doubtful and suspicious substances, that we are to drink from it, without hesitation, and with implicit faith? Is it, from its nature and character merely and solely, a trust-worthy description of evidence? What is it but a hand-bill distributed for the purpose of obtaining votes?

But, farther, who is its author, and by what motives is he actuated? A man who sees a considerable portion of the fruits of many

years labour and perseverance, about to be snatched from him,—a man in the high road to fame and fortune, who meets with a fearful obstacle in his path,—labouring under the irritation and disappointment of an expensive and unsuccessful law-suit,—endeavouring, in the common phrase, to “stir heaven and earth in his favour.” Is this the witness to be relied upon in his own behalf? acted upon by such overwhelming inducements, is it from him we are to seek for impartial evidence? Is this the unbiassed, unprejudiced, impartial testimony, upon which we are to repose in security and confidence? The reader must reply.

The main feature, in this publication, however, so far as we have to do with it, is the part where he states, he invented the machinery of his first patent in 1768; this was, as before often said, for the roller spinning. Let us measure the truth of this assertion, by that of the one which follows, that he “produced an invention,” which must mean *invented* machines, “for carding and preparing the materials, and took out a patent for them in 1775.” One of these is the feeder, the revolving cloth, that carries the cotton into the cards of the carding engine, it is No. 3 in the specification. This, Mr. Lees, a Quaker, on his solemn affirmation, testifies, was invented by himself; that he

began it on the 15th of June, and finished it in the latter end of July or beginning of August, 1772. Thomas Hall, another of the Society of Friends, upon the like asseveration, and Mr. Henry Marsland, upon his oath, confirm that fact. Another of the inventions in Mr. Arkwright's specification, is No. 4, the crank and comb: this, Mrs. Hargrave, the widow of Hargrave, to whom Mr. Mc. Culloch attributes the invention of the spinning jenny, and her son, George Hargrave, swear, was invented by the husband of the former, and father of the latter, James Hargrave, then dead; George Whittaker, the smith employed to make it, swears, that Hargrave employed him to do it, and gave him directions; all three fixing the period in 1773, or 1774. The filletted cylinder is No. 5 in Mr. Arkwright's specification. The testimony of Mr. Wood, and Mr. Pilkington, establish that the filletted cylinder, was invented by the former, in 1774, or very early in 1775. The roving can is No. 7 in the specification: this, Benjamin Butler, swears, he invented, 26 years before the trial; that would be in 1769, and he is confirmed by Betty Kennion, Joseph Woolley, and John Leach.

Now, if the statement by Mr. Arkwright, in his "Case," and more definitely and precisely

in his specification, that he was the inventor of these machines, be true,—then are Lees, Hall, Marsland, Mrs. Hargrave, George Hargrave, Whittaker, Wood, Pilkington, Butler, Kennion, Woolley, and Leach, all perjured. To such a dilemma are we reduced in taking what is alleged in this document to be veracious and fact. Do I deceive myself in saying, that Mr. Arkwright's unsupported assertion, (himself being actuated by such powerful motives,) cannot stand against their united evidence for a moment? If, then, one very important part of his "Case" turns out to be misrepresentation and untruth, is a disputed statement—*another member of the same paragraph*, (omitting, for an instant, every other proof,) at all to be relied upon? Is it not infected by the contamination of its comrade? Is it not dragged down to the bottom with the sinking body of its companion?

Volvitur—

—et rapidus vorat aequore vortex.

That man must be hardy indeed who would take, as fact, any questioned statement of the "Case," after seeing one of its most direct and leading allegations so totally wrecked.

The same argument applies with equal force against the specification,—that and the "Case" being, in fact, one authority, namely, Mr. Arkwright's own, with this difference, that

an affidavit accompanies the specification or the petition for the patent, alleging that the patentee is the inventor, that it is a new invention, and that he is the original inventor. The world, I apprehend, would be more inclined to rely upon his affidavit than his naked assertion, and not only, in this respect, but in the greater exactness and precision of its allegations, are the specification and affidavit, a better authority than the "Case." In short, it is far the strongest and best argument on Mr. McCulloch's side of the question, and this he, with a felicity of argumentation peculiar to himself, totally omits. The argument which comes most immediately, and most authoritatively, from the fountain head, such a fountain as it is, he never brings forward at all. He reminds one of the jocular story now and then introduced by the late lamented Mr. Canning of a company of strolling Thespians, who performed the play of Hamlet, Prince of Denmark, with the character of Hamlet left out. Undoubtedly whether it be simply, the assertion of Mr. Arkwright, as in the "Case," or that assertion more expanded and particularized, confirmed by an affidavit, as in the specification, the oaths of fifteen impartial and uninterested witnesses, (including with the others, Highs, and Kay and his wife) do equally militate against and disprove it. And by what sort of secret reservation or

mental evasion, Mr. Arkwright could reconcile the taking of the affidavit to his conscience, I am unable to say. Its "still small voice," is sometimes disregarded, when it is in the way of acquiring a large fortune. Perhaps he might say to himself, that literally speaking, it was true;—that he had the inventions in his own possession, and, therefore, they were *his own* inventions; or, that he first turned them to decidedly profitable account, and therefore he was essentially the inventor; and that he found them out, that is, he hunted them out and found them in the hands of other people; he discovered from what individuals they might be procured, and, therefore, in a literal sense, he found them out. At least, such is the most venial explanation that can be given. I beg to assure any of the descendants of Sir Richard Arkwright, if these pages should ever meet their eye, that it is the farthest possible from my intention to hurt their feelings, or uselessly to inflict a moment's pain, in the mention of him. It is natural and laudable that they should entertain respect and affection for the memory of their ancestor, and I should be one of the last persons to step out of my way to infringe upon those feelings or derogate from them. But his life is now matter of history, and the interests of truth require that we should not lose sight of

her, through a mistaken delicacy. Besides, I should have been weak, if I had forbore to make use of an argument, on that account, in a controversy to which Mr. Mc. Culloch, their own champion, has called me, and with reference to which he has not scrupled to make use of strong epithets affecting myself. They must remember he has not shrunk from charging Higgs and Kay with perjury, and has stated, to use his own words, that their "story had been manufactured for the occasion," p. 12. They must remember these things and then I hope they will see there is nothing wanton or unfeeling in my observations. I have admitted in my small work and at all times, that Sir Richard Arkwright was indefatigable in collecting, and skilful in combining, various pieces of machinery, then newly invented; and that he first formed a regular system for the spinning of cotton. I have admitted his steady perseverance in struggling with the obstacles he had to encounter, in the early stages of his hazardous speculation; for, hazardous it was, and that for many years, and I have admitted that, without him, the method of spinning by rollers might have perished with its inventor, and been lost to the world. It is my wish to do Sir Richard's memory that fair and impartial justice, which I am endeavouring to mete out to others. He was one of the principal means

of forwarding the manufactures of this country, but he was this by borrowing the inventions as well as the capital of others. He was not himself an inventor. By borrowing the feeder from John Lees, the filleted cylinder from Mr. Wood, the crank and comb from James Hargrave, the roller-spinning from Highs, the roving-can from Benjamin Butler, and money from Mr. Smalley and Messrs. Strutt and Need, he was enabled to complete a series of machinery—a regular system for carding, roving, and spinning.

Mr. Mc. Culloch besides referring to this “Case,” has borrowed largely from it in his narrative.

Another of the sources from which he has drawn, is, “The Beauties of England and Wales.” From vol. 3d of that work, p. 516, the following is extracted :—

“The first mill that was erected on these principles by Sir Richard Arkwright, was at Cromford village. Its establishment proved a source of much legal contention; for the manufacturers of Lancashire, who were apprehensive of what has actually been the result, that it would supersede those of the hand machines then employed, formed a

“ strong combination to impede its success,
 “ and endeavoured to destroy the validity of
 “ the patent, by contesting the originality of the
 “ invention; and though, in two instances,
 “ they obtained a favourable verdict, from
 “ particular circumstances, and lost it in a
 “ third, there cannot be a doubt, but that every
 “ *really essential* part of the machinery derived
 “ its structure from the powerful genius of Mr.
 “ Arkwright.” Again, in vol. 3. page 518,
 speaking of Sir Richard Arkwright and the
 rollers for spinning cotton, the article says,
 “ The first hint respecting the means of effect-
 “ ing this improvement, he said he accidentally
 “ received from seeing a red-hot iron bar
 “ elongated by being passed through iron
 “ rollers. Between this operation and that of
 “ elongating a thread, as now practised in
 “ spinning, there is no mechanical analogy;
 “ yet this hint being pursued, has produced an
 “ invention, which, in its consequences, has
 “ been a source of individual and national
 “ wealth, unparalleled in the annals of the
 “ world.” Mr. Mc. Culloch tells us, these
 statements are of the highest authority, inas-
 much as he has reason to believe they were
 furnished by Mr. Strutt, the son of Sir Richard
 Arkwright’s first partner. But if so, what
 then? Mr. Strutt’s father would have the
 account from Sir Richard himself. Does Mr.

Mc.Culloch mean to say, Mr. Strutt, the elder, knew, from his own personal knowledge, any of the events and transactions of Sir Richard's life previous to the year 1769, relative to the invention of the spinning rollers? The thing is next to impossible. I never denied that Mr. Arkwright *said* he invented them. Who doubts that he would say so? Had he not, in effect, told the world the same thing, by first enrolling the specification as his own invention, and afterwards bringing actions for the infringement of his patent? Then, as to his saying he obtained the first idea of them from seeing an iron bar, &c. it is very natural, that, in the course of his conversations, he might seize upon some such thought, as a plausible and specious ground for leading people to suppose they were his own invention. He was, however, very unhappy in the suggestion, for, there is no analogy between the principle of the elongation of a bar of iron and that of the cotton-thread in the roller-spinning; the principle of the latter is drawing and stretching—that of the former, compression. The account also shews, that Mr. Strutt, the son of Sir Richard Arkwright's partner, had not a doubt but that Sir Richard invented the rollers. Well, be it so. Let Mr. Strutt believe whatever he pleases. The ground of his belief, as is plainly to be inferred from Mr. Mc.Culloch's words, was, that the circumstance

had been communicated to him by his father, and who would be so unreasonable as to expect the latter, whatever his opinion might be, to give the lie to his friend,—that friend being also his partner in a connection, from which he had realized, perhaps, some thousands of pounds. Besides, as he could have no personal knowledge on the subject, why should he disbelieve Sir Richard's account of the matter?—he had several thousand golden reasons for believing it and retailing it to others.

Another work referred to by Mr. McCulloch is the Supplement to the Encyclopædia Britannica, vol. 3d, page 393, Article, Cotton Manufacture. Wholesale compilations, such as the Encyclopædias, are not very safe guides, in doubtful cases. It would be a novelty to find a question, about which writers on the subject are at variance, settled by a reference to their pages. The article spoken of is of recent date, about 1816;—no authority is cited, and the author appears to have followed the vulgar account originally promulgated in Mr. Arkwright's "Case." He lays no claim to original information, he does not raise the question here discussed, and was evidently not in possession of the facts stated in my former publication. He, therefore, neither

adds to, nor detracts from, the argument on either side.

Mr. Mc. Culloch also cites or refers to the account of Sir Richard Arkwright in Aikin's Biographical Dictionary. From that work, entitled "General Biography;—or Lives Critical and Historical, chiefly composed by John Aikin, M.D. and the late Rev. William Enfield, L.L.D." vol. 1st, page 391, the following is an extract:—"The historical facts appear to be the following:—About the year 1767 Arkwright came to Warrington, at which time he had quitted the profession of a barber, and went up and down the country buying hair. He had at that time a scheme of some mechanical contrivance, of the nature, as it is said, of a perpetual motion. A clockmaker of that place, whose name was John Kay, became acquainted with him and dissuaded him from it; but remarked that much money might be gained by spinning cotton, which Kay said he would describe to Arkwright. Arkwright objected, that many gentlemen had ruined themselves by that scheme; but the next morning he came to Kay's bed-side, and asked if he could make a small engine at a small expense. This John Kay had been employed as a workman to make a cotton spinning engine for a Mr.

“ Highs, who was brought in evidence on the
 “ trial for setting aside Arkwright’s patent, and
 “ proved that he had invented an engine of
 “ this kind, but not that he had brought it to
 “ perfection. Kay and Arkwright applied to
 “ Peter Atherton, Esq. now of Liverpool, to
 “ make such an engine, but from the poverty of
 “ the appearance of the latter, Mr. Atherton
 “ refused to undertake it, though afterwards
 “ on the evening of the same day, he agreed to
 “ lend Kay a smith and watch-tool maker, to
 “ make the heavier part of the engine, and
 “ Kay undertook to make the clock-maker’s
 “ part of it, and to instruct the workman. In
 “ this way Mr. Arkwright’s first engine, for
 “ which he afterwards took out a patent, was
 “ made. Mr. Arkwright soon afterwards
 “ joined in partnership with Mr. Smalley, of
 “ Preston, in Lancashire, but their property
 “ falling short, they went to Nottingham, and
 “ there met with rich individuals, by the help
 “ of whom they erected a considerable cotton-
 “ mill turned by horses. The same Highs had
 “ also employed himself in making cylindrical
 “ carding engines.

“ This is an outline of some of the facts
 “ stated on the behalf of Mr. Arkwright’s
 “ opponents, who set his patent aside. The
 “ story current in the manufacturing countries

" is, that he stole these inventions, and enriched
 " himself at the expense and by the ingenuity
 " of other men. Upon the face of the thing,
 " however, without attending to other evidence
 " which might, perhaps, be brought, it appears
 " that the cotton spinning was no new attempt,
 " when Mr. Arkwright took it up, but an object
 " much laboured at, and as it had not succeed-
 " ed, it should of course follow that there were
 " difficulties to be overcome, and matters of
 " subordinate invention (which usually cause
 " the failure of new schemes) to be matured,
 " digested, and brought into effect. In the
 " hands of Mr. Arkwright the carding and
 " cotton spinning became a great national
 " manufacture. Before he undertook it, it
 " appears to have been nothing. And as it
 " must be admitted he did not bring his project
 " to bear at once, as a pirate might have done,
 " he must of right be considered as the man
 " who, after embarking in a great national
 " undertaking, where many others had failed,
 " did exhibit enough of perseverance, skill, and
 " activity, to render it of value to himself and
 " the public.

" After this statement of the case, which
 " is the best that could, under the present cir-
 " cumstances, be procured, it seems that the
 " merits of Sir Richard Arkwright might be

“summed up by observing, that the object in which he was engaged is of the highest public value; that though his family is enriched, the benefits which have accrued to the nation have been incalculably greater; and that upon the whole he is entitled to the respect and admiration of the world.”

The above was written soon after Sir Richard's death, and the writers say they obtained some of the facts from private sources. It was published seventeen years before the *Encyclopædia Britannica*, and having been written nearer the time when the circumstances treated of occurred, it is so far a better authority. I should be glad to be informed whether there be any thing here that clashes with, or disproves any of my statements, nay, whether it does not confirm them. I have arranged it among Mr. Mc.Culloch's authorities, with the view of answering any part of it, that might make against me; but now I have done so, I find, I have nothing to answer. On the contrary, I have before adopted part of it, and consider the whole to be in perfect harmony and accordance with my entire argument, and that, indeed, it very powerfully supports it.

I have here a serious charge to bring against Mr. Mc. Culloch,—I accuse him of a

suppression of the truth, of garbling and mutilating the accounts given by the books to which he refers, and leading the readers of the Edinburgh Review, to suppose they are perusing the integral substance of a narrative given by Dr. Aikin, when they are doing no such thing. If the reader glance his eye over the above extract, he will find it is there stated, that *Kay accompanied* Arkwright, when he went to employ Mr. Atherton to make him a machine. This important fact, because it makes against him, Mr. Mc. Culloch *has wholly suppressed*. Such shifts, should be disdained by a respectable writer. I wish the reader to take nothing on trust, and though the passage has appeared before in this work, when used for another purpose, with a view to enable him to verify what I say, without the trouble of turning back to look for it, I insert it here again *verbatim* from the Edinburgh Review, (No. 91, page 8,)—"Not being himself a practical mechanic, Arkwright employed a person of the name of John Kay, a watchmaker at Warrington, to whom we shall afterwards have to refer, to assist him in the preparation of the parts of his machine. Having made some progress towards the completion of his inventions, *he applied*, in 1767, to Mr. Atherton, of Liverpool, for pecuniary assistance to enable him to carry them into effect; but

“this gentleman declined embarking his pro-
 “perty in what appeared so hazardous a specu-
 “lation, though he is said to have sent him
 “some workmen to assist him in the construc-
 “tion of his machine.” But more, Mr. Ark-
 wright applied to Mr. Atherton to get him to
 make a machine for him, and Mr. Atherton
 lent him a smith and watch-tool maker; but
 where did Mr. Mc. Culloch learn he applied to
 Mr. Atherton, (who was evidently then an instru-
 ment-maker, by his having a smith and watch-
 tool maker to lend) for *pecuniary assistance*? his
 authority, Aikin, states no such thing, and it
 seems too silly to be supposed that Mr. Ark-
 wright would apply for a loan of capital, to a
 man, who, by the account itself, it appears,
 would hardly trust him with the price of a
 machine. Thus, Mr. Mc. Culloch has omitted
 one important fact stated by the book he cites,
 and introduced another which *it does not*
state, and which almost carries with it its own
 refutation.

Another reference of Mr. Mc. Culloch's
 is Baines' History of Lancashire, vol. 2d, page
 484, in which page Mr. Baines says,—“ It
 “ appears from the evidence of John Kay, a
 “ mechanic, delivered on oath before the Court
 “ of King's Bench, the 25th of June, 1785, on a
 “ legal inquiry into the subject of the patent right

“ of spinning machines, that in the year 1768
 “ this deponent accompanied Richard Ark-
 “ wright, to Preston, at the time of Burgoyne’s
 “ election, bringing with him two models of a
 “ spinning jenny, invented by Thomas Higs,
 “ a reed-maker, at Leigh. Some time before
 “ the election commenced, Arkwright was
 “ actively employed in preparing for his manu-
 “ facturing operations, and his first rude spin-
 “ ning machine was fitted up in the parlour of
 “ the house belonging to the Free Grammar
 “ School, which was lent to his friend and
 “ future partner, Mr. Smalley, for the purpose,
 “ by Mr. Ellis Henry, the head master of the
 “ School.” Have I any thing to answer here ?
 Does this gainsay or disprove my “ rash and
 “ ill-considered statements ?” I think it joins
 to, and continues them very pleasingly,—it
 makes my account more complete.

The next of Mr. Mc. Culloch’s guides is a
 paper by John Kennedy, Esq. now of Ardwick
 Green, Manchester, published in the Memoirs
 of the “ Literary and Philosophical Society of
 Manchester, 2d Series, vol. 3d, page 135.”—
 Mr. Mc. Culloch says,—“ Mr. Kennedy is one
 “ of the most eminent and intelligent cotton
 “ manufacturers in the Empire ; and it is of
 “ importance to remark, that, *although he was*
 “ *resident in Manchester, in 1785, when the last*

" trial for setting aside Sir Richard's patent
 " took place, and must, therefore, have been
 " well acquainted with all the circumstances
 " connected with it, he does not insinuate the
 " smallest doubt as to his being the real in-
 " ventor of the spinning frame, nor even so
 " much as once alludes to Highs." The prin-
 cipal circumstance here stated is not the fact.
 Mr. John Kennedy was not resident in Man-
 chester in 1785. He came from Scotland
 to Chowbent, a village about two miles and a
 half from Leigh, in 1784, he arrived at Chow-
 bent on the 8th of February, 1784, he lived
 there seven years and went to reside at Man-
 chester early in March, 1791. Therefore, Mr.
 Mc. Culloch is here completely out, and if he
 could blunder about a circumstance so easily
 to be ascertained, what are we to think of the
 rest of his facts? Highs left Leigh and went to
 Manchester, about 1771, after living there a year
 he went to reside at Wilderspool farm, in Barton,
 near Eccles, from which place he removed to
 Bolton-le-Moors, and he returned to Manches-
 ter, in 1775 or 1776; where he afterwards re-
 mained until his death, in 1803; therefore, while
 Mr. Kennedy was living at Chowbent, Highs
 was not residing in the neighbouring town; but,
 if Mr. Kennedy had gone or sent thither to
 make enquiries relative to Mr. Arkwright, any
 person who had known the latter could and

would have informed him of the universally received account of his having pirated the roller spinning from Highs. But, it is extraordinary doctrine to say, that because Mr. Kennedy happened to be ignorant of this or that fact, that therefore it never occurred. Mr. Mc. Culloch has drawn arguments, important ones he says, against Highs' claim from Mr. Kennedy's ignorance. Mr. Kennedy could only have omitted all mention of the question, as to the justice of Sir Richard Arkwright's claim to the originality of the inventions, from not knowing there was such a question, or the most contemptuous disregard of the judgment of his readers. The latter cannot be supposed. Now the ignorance of an eye witness, who is present at a transaction and does not observe certain things spoken of by other witnesses as having passed, (which is here the point of Mr. Mc. Culloch's argument,) is one thing, but ignorance of the events of a by-gone generation, the knowledge of which is to be obtained only by means of laborious enquiry or fatiguing research, is entirely another. It is scarcely to be expected, in the former case, that a man will shut his eyes, and if, with the same means of observation as another person who witnesses an event, he states that he saw nothing of the kind pass, which the other deposes to, it invalidates, to a certain ex-

tent, the testimony of the latter; but who would assimilate the two cases? Mr. Kennedy was not cotemporary with the events, and very partially so, with the parties spoken of. They had left Leigh the best part of 20 years, when he went to reside at Chowbent. To what then does Mr. Kennedy's *personal* ignorance of the circumstance amount? If he had procured a Report of the Trial and perused it attentively, he would have found that there was a question, *to say the very least*, as to the justice of Mr. Arkwright's claim; or if he had referred to the accounts of the Cotton Manufacture, published before the year 1800, he would have found Highs mentioned, and that it was then commonly known, that Mr. Arkwright was a borrower of other people's inventions, and was *not himself* an inventor. See Aikin and Enfield's Biography and the Extract given in page 87 of this Work, and also Dr. Aikin's History of Manchester, page 170, where, speaking of Mr. Arkwright, he says, "This gentleman, knighted in the present reign for his ingenuity, is worthy of being celebrated for his industry in the early *observations which he made of new inventions* in carding and spinning, and his capacity in forming them into a perfect system in the twist machine, for which he obtained a patent." Aikin, and other early writers on this subject, do not celebrate

Mr. Arkwright for *his inventions*, but for *the observations he made upon other people's inventions*. If Mr. Kennedy, from not making the inquiries which he might have done, or from not searching into and examining certain books which treated upon his subject, and which are not very rare, was ignorant of certain circumstances, that was his misfortune ; Mr. McCulloch builds an argument, not on his negative testimony as an eye witness, but upon the defectiveness of his inquiries, and his want of appropriate reading.

Whether the inaccuracy of one part of an essay will make the rest of it more trustworthy or not, I do not know, but, Mr. Kennedy states, in the publication I speak of, that the fly shuttle was invented by Mr. John Kay, of Bury, in 1750 ; whereas, it was invented by him in 1738. His friend, Mr. McCulloch, has deserted *his* guidance, in the latter particular, and followed mine, why, I do not know, after the opinion he has expressed of my "rash, and ill-considered statements," and stated, *after me*, that the fly shuttle was invented in 1738. Mr. Kennedy's error respecting this, as well as that relating to the invention of the rollers, I was aware of, at the time I wrote my book, but I then forbore, from a feeling of delicacy, to animadvert upon

the mistakes of a gentleman with whom I was personally acquainted.

I believe it is through a recent acquaintance between the families of Mr. Kennedy and Mr. Arkwright, that Mr. Mc. Culloch, through Mr. Kennedy, is enabled to say, (Edinburgh Review, p. 13.) "he has access to know, "that none of Sir Richard Arkwright's most "intimate friends, and, who were best acquainted with his character, ever had the "slightest doubt, with respect to the originality of his invention. Some of them, "indeed, could speak to the circumstances, "from their own personal knowledge, and "their testimony, was uniform and consistent." Then why not tell us what they *can* speak to, Mr. Kennedy? If any new information has been obtained, if the inspection of private, and hitherto unknown papers, has substantiated any facts, or fixed any doubtful dates, if any thing has been discovered, which throws light upon the question at issue, it is very injudicious, and destructive of your own doctrine upon the subject, not to communicate it. To say, with respect to a matter in controversy, there are proofs on your side, and not to produce them, is, in effect, to admit they will not bear examination. The day is gone by, if ever there was one,

when the world would take on trust, in a disputed question, the mere *ipse dixit* of an individual, that a particular person invented this or that machine, or made this or that discovery, when, at the same time, he could not possibly know the fact personally and studiously kept out of view the grounds on which his assertion rested. When visiting Mr. Arkwright, Mr. Kennedy may have seen some memoranda of Sir Richard's, relative to the trials, and a feeling of complacency towards Mr. Arkwright, may have probably led him to attach too much importance to them, particularly as he was, himself, committed upon the question by his essay to which I have adverted. However, if he has obtained any important information on the subject, it would have been as well to put it into Mr. Mc. Culloch's hands, in order that the world, through the medium of the Edinburgh Review, might have had the benefit of it. The circumstances which it is said Sir Richard's most intimate friends can speak to, are probably the same that Mr. Strutt has stated, in *The Beauties of England and Wales*. These have already been examined and replied to. Mr. Kennedy appears to think, that Sir Richard's friends *could* speak to the circumstances of his inventing the rollers, *if they would*; may

we not reverse the phrase, and say, *they would if they could?* there has been an opportunity, and I should be glad to know, whether the sources of information, to which this imposing "access to know," has been had, have added a feather's weight to the scale.

The other authorities, which Mr. Mc. Culloch has brought forward to his support, are his own gratuitous assertions, his own misrepresentations and falsifications. In page 10, he says that the Lancashire manufacturers entered into a combination, in 1772, and raised an action, to have Sir Richard Arkwright's patent set aside, on the ground that he was not the original inventor; he then says, "But the evidence brought forward at the trial, was quite insufficient, to support this allegation; a verdict was accordingly given in Sir R. A.'s favour, and he retained, *without further opposition of any sort*, the exclusive enjoyment of the patent, until the expiration of the fourteen years."

Now, Mr. Mc. Culloch, you surely must have been dozing in your elbow-chair, when you dictated this passage to your amanuensis. Can the reader believe it? there was *no trial*

whatever upon the subject, in 1772! What was Mr. Kennedy doing, when he overlooked this egregious error? he must have dozed over revising, as well as you over composing. You tell us of a trial in 1772, and say, that the evidence brought forward at that trial, was insufficient to support the allegation made, and that a verdict was, therefore, given in favour of Sir Richard Arkwright; afterwards, you reason upon these false statements, and draw arguments against Highs' claim from them. What becomes of your arguments, when your premises turn out to be moonshine? Sheridan said, of some gentleman, that he was indebted to his memory for his wit, and to his imagination for his facts,—this fact of your's, undoubtedly came from the latter source; but, to say where the wit comes from, would, I rather think, have puzzled Sheridan. I felt convinced that a speculation so precarious as the cotton-spinning machinery, for which a patent was only obtained in 1769, could scarcely, by possibility, have turned out so lucrative, and that circumstance have become so notorious, that, within three short years afterwards, litigations should have been commenced, and trials at law, had upon the subject; and, I was farther confirmed in my conviction, by finding that Mr. Arkwright had, in *his own* "Case," stated

that no profit accrued until the latter end of 1774. I made every examination and enquiry I reasonably could, and found no authentic traces of any such trial, I therefore took upon myself to say, in my small work, that there *was none*; but, Mr. Mc. Culloch's hardihood of assertion is such, that he has not shrunk from contradicting me flatly upon the point, without even citing an authority. Nay, he has gone farther, and circumstantially related that there was, not only an action tried between Mr. Arkwright and others, but, that certain parties were plaintiffs, and Mr. Arkwright defendant—that the ground of the action was, that Mr. Arkwright was not the original inventor—that the evidence was insufficient to support the allegation,—and even—that a verdict was given for Mr. Arkwright. A more effective account could scarcely have been supplied by an eye witness. This nicety of detail, has, however, had the effect, I hope, of setting the question at rest, by inducing me to take that step, which, I humbly conceive, will henceforward be conclusive upon the subject, and the result may lead readers to appreciate properly the arrogant and presumptuous assertions of reviewers, who are far less likely, from the necessity an author is under, of bestowing time, trouble, and ex-

pense, upon his subject, to be equally well acquainted with it. I have caused the records of the courts of King's Bench; Common Pleas, and Exchequer, to be searched, *and find that no action whatsoever was brought, either by or against Mr. Arkwright, in that year, much less was there a trial.*

Mr. Mc. Culloch says, page 11, "Where, "then, it may be asked, was this Mr. Highs, "in 1772, when the trial to set aside Sir "Richard Arkwright's first patent took place? "and where was he at the two trials, in 1781, "and in February, 1785?" I am sorry to be obliged to inform you, Mr. Mc. Culloch, that we have here another very considerable error, and I am surprised the reviser has not corrected it. You have, already, in page 10, spoken of one trial on the 25th of June, 1785, and here in the very next page, you speak of another trial, in 1772, of two trials, in 1781, and of one trial in February, 1785, altogether five trials; now, there never were more than three, viz. one in July, 1781, one in February, 1785, and one in June, 1785; so, gentle reader, three trials at law, are converted by Mr. Mc. Culloch, the Edinburgh Reviewer, into *five*.

But, you wish to know where Highs was

in 1772. I will inform you. In 1772, he was in Mrs. Jackson's parlour, in Manchester, where he accused Arkwright, in Mr. Rothwell's presence, of getting possession of the rollers, by means of John Kay. You also wish to know where he was at the trial, in 1781, and at the trial in February, 1785. I will inform you as to this likewise. On the trial, in 1781, he was in court; I have this fact from his son, whom I have inquired out, since the publication of your article, not then knowing he had any son in existence, and I find that he is an old man, about 66 years of age, and resides in the neighbourhood of Blackburn. In 1781, Highs was in Ireland, where he first received notice to attend, and give evidence on behalf of the defendants, in some of the nine actions commenced by Mr. Arkwright at that time. Along with the notice, he received an order upon Messrs. Benjamin and Thomas Graves, of Golden-lane, Dublin, for money, to pay his travelling expenses. He came over to England, and was in the Court of King's Bench, during the trial, in July, 1781. I shall shew you, presently, why he was not called upon to give his evidence; but, first, I will convince you, Mr. Arkwright's counsel knew that the opposite parties were in possession of it, as early as 1781.

Mr. Serjeant Adair, Mr. Arkwright's counsel, when moving for a new trial, on the 10th of November, 1785, and speaking of the body of evidence produced upon the part of the prosecution, says, "I recollect, it appeared that though it had not been made use of upon former occasions, yet the parties were clearly in possession of it, so early as the first trial; for it was stated, that many of those witnesses were in the original brief upon the first trial—if it be so, upon what ground upon earth, but that of deceiving and reserving a masked battery of evidence, could it be possible, a party in a matter in which he was so much interested, would not discover it?" To which Lord Mansfield replied, "They did very right, I suppose they saw the opinion of the Court upon the specification." And so it was, the evidence on the trial, in July, 1781, and also that on the trial, in February, 1785, were confined solely to one question, viz. whether Mr. Arkwright's specification was sufficiently intelligible or not. The question of the originality of the invention, was not at all gone into, or at all alluded to, on either of those two trials, consequently, Higgs, who came to give evidence on the question of the originality of the invention, and not on that of the sufficiency, or insufficiency, of the specification, was not called into the witness-

box ; but he was in court. And not only he, but Kay also. In his evidence, already stated, (see page 40,) the latter expressly says, he was present as a witness when the nine causes were before the court. Mr. Lee sends for the brief, which had been delivered to the counsel, to shew he was put down as a witness in it. And after the examination has proceeded whilst they have been fetching the brief, Mr. Erskine interrupts the cause, by rising, and saying, " It is my duty in this place to answer, I have " now in my hand my brief, which I had in " 1781 ;" and he offers to tell the court and jury, why Kay was not then called. Mr. Arkwright's counsel, knowing the explanation will injure their case, decline to have it given, but I have stated it in these pages.

Higs and Kay did not give their evidence on the first trial, in July, 1781, because they were not witnesses for Colonel Mordaunt. In 1781, Mr. Arkwright commenced, as before stated, nine actions against nine individuals ; some of these nine actions were to have been defended on the ground of Mr. Arkwright's not being the inventor of the rollers, and on these Higs and Kay were to have been witnesses, and they were in court for that purpose ; but only one of the nine causes was tried, that against Colonel Mordaunt, which was de-

fended solely on the ground of the insufficiency of the specification ; and the reason why the other eight were not tried, and why Highs and Kay did not then give their evidence, was this :—Mr. Arkwright declined trying the other eight causes, and withdrew them.

On the second trial, in February, 1785, the same reason again prevented Highs and Kay from giving evidence. The insufficiency of the specification, which had been previously determined in favour of the defendants in the King's Bench, was the only question tried, and on this neither Highs nor Kay could give any evidence. However, on the third trial, in June, 1785, when the originality of the invention of the rollers was contested, both Highs and Kay did give their evidence. That evidence relates solely to the latter point, and does not, at all, refer to the sufficiency, or insufficiency, of the specification. The first time the question, upon which they can say any thing is likely to be tried, they are in court, and on the subsequent occasion, when it is tried, they are again at their post, and give that evidence which they were ready to have done on the previous occasion. In 1781 they were the defendants' witnesses, and, as Mr. Arkwright, who was then plaintiff, did not bring the actions to trial, on

which they were subpoenaed, they could not, of course, be examined ; but in June, 1785, when they appeared on behalf of the crown, in the action commenced *against* Mr. Arkwright, for the first time they were enabled to give their evidence ; and that evidence was what has been stated.

Mr. Serjeant Adair, when moving for a new trial, on the 10th of November, 1785, says, "On the first trial, (July 1781) Mr. Arkwright was not so well prepared as he might have been, upon the question, and the verdict went against him, and, for a considerable time, he acquiesced in that verdict, conceiving, as he states in an affidavit I have before me, the law to be stricter, in that respect, than he was afterwards advised it was ; upon being led to understand that there was a different construction of law upon the point, he thought it right to make another trial upon that principle, with respect to that question which had been the only one agitated in the first cause ; in consequence of which, he brought a new action, (viz. in February 1785;) the event your Lordship is apprised of, and further, that the sufficiency of the specification upon the second trial, as well as the first, was the only point that was then gone into, either in

"evidence, or in argument, before the Court."
Mr. Arkwright's Counsel, here, himself, affirms that the specification was the only question gone into, on the first and second trials.

Mr. Mc. Culloch says, "he thinks that the "story of Higs and Kay, (i. e. their evidence,) "had been manufactured for the occasion," and, he says that he believes the readers of the *Edinburgh Review*, will agree with him in thinking so.

His reason for holding this opinion, is, that Higs and Kay had remained, as he says, and, perhaps, knowing no better, thinks, passive spectators of what was going forward for SIXTEEN years, and had allowed Mr. Arkwright to accumulate a princely fortune, while they remained in a state of poverty, when a single hint from either of them, would have sufficed to force Mr. Arkwright to give them a share of his profits, or would have furnished the manufacturers with the means they were so anxious to obtain, of procuring the immediate dissolution of the patents.—A very absurd idea seems to pervade the whole of Mr. Mc. Culloch's article, namely, that the roller spinning was a perfect machine, and began to produce its great effects from the time of its invention, and that Mr. Arkwright was getting

money, nay, amassing a princely fortune, from 1772, downwards. I do not wonder at Mr. Mc. Culloch's falling into this mistake, because it may be presumed, that he knows little about cotton-spinning, but, Mr. Kennedy ought to have known sufficient to correct this palpable absurdity, when he revised the article, which, as I afterwards state, he did, previously to its publication. If he had taken the trouble of examining into Mr. Arkwright's early attempts to spin by rollers, he would have found, that even so late as 1779, the undertaking was by some still considered hazardous. The following circumstance proves, that ten years after he obtained his first patent, the confidence in his ultimate success, was by no means universal. He separated from his wife, about 1779, because she would not agree to join him in selling some property which could only be sold with her consent; this, Mr. Arkwright wanted to convert into ready money, for the purpose of embarking it in his spinning concerns. The property was but small, perhaps of the value of four hundred pounds, or some trifle more, yet Mrs. Arkwright refused to venture it in the speculation, because she considered that would be to endanger it. Mrs. Arkwright preferred parting with her husband, to giving up her property, so late as 1779. This she would scarcely have done, if she had felt

a tolerable assurance that giving it up would have been a means of doubling it, or trebling it. The separation was chiefly her own act. She never spoke ill of Mr. Arkwright, and never would allow any one else to do so in her presence, though, for some years afterwards, she lived entirely upon her own means. Even when Mr. Arkwright had accumulated a large fortune, he allowed her no more than thirty pounds a year. On that allowance she lived, as far as his support went, during his life time. As Mr. Mc. Culloch may, after my questioning his assertions, enquire of me my authority for these statements, I shall, at once, inform him. They come from Mr. Arkwright's niece.

Mr. Arkwright says, "It was not, however, till upwards of five years had elapsed, after obtaining his first patent, and more than £12,000. had been expended in buildings and machinery, that any profit accrued to himself and partners." This is Sir Richard's own account, and from it, (Mr. Kennedy, I am sure, will never venture to doubt any thing which Sir Richard has said) we find that *no profit* accrued from the adventure, before the end of the year 1774, and yet, Mr. Mc. Culloch states that Highs' evidence was manufactured, *because he did not give evidence on a trial in 1772,—a trial which never*

took place, and because he did not, in 1772, force Mr. Arkwright to give him a share of profits which were not realized, according to his own authorities, *even in 1774*, and in all probability, not in 1775, and not certainly known so to be, until a considerable time after that. On such grounds, the readers of the Edinburgh Review are coolly asked to believe three witnesses perjured, and to agree with Mr. Mc. Culloch, in characterizing Highs' evidence as "*absurd and incredible*." It is happy for mankind that a different rule of judgment ordinarily prevails, and that men are not to be charged with perjury, when deposing to positive facts, from the megrim speculations of empty theorists.

But Mr. Mc. Culloch says, Highs and Kay remained passive spectators of what was going forward for "SIXTEEN" years, that is; until the year 1785. Now, even as early as 1772, Highs had told Arkwright to his face; in Mrs. Jackson's parlour, that he had got his invention of the rollers, by means of Kay. Highs brought this accusation against Mr. Arkwright, *before any profit had accrued* from the roller spinning, before it was fully ascertained whether it would succeed or not. He did not wait to see it grown up, and flourishing in its maturity, but, with the partiality of

a parent, he claimed the infant in its rickety state, and said, this is my invention. In 1772, or in 1773, Kay talked openly of a partnership with Mr. Arkwright, and, in 1781, both Higs and Kay appeared in a Court of Justice, to give evidence against his patent. It is plain they were not passive spectators, they were as active before they knew the importance and value of what they bestirred themselves about, as their means would allow them, and no individual or association would call their testimony into operation until there was some pretty certain object to be attained by it. Suppose Mr. Arkwright's machines were discovered to be useful and profitable, about 1778 or 1779, there is very little time lost in the public having begun to use them in 1779 or 1780, and a trial for an infringement of the patent coming on to be tried, in which the evidence in question was ready to be given, in the middle of the year 1781. Mr. McCulloch chooses to speak of Sir Richard's machines in 1775, when he had added to the rollers the feeder, the filleted cylinder, the crank and comb, and the roving can. These he calls "additional discoveries and improvements," and says they were invented by Sir Richard. He finds these various inventions all united in Mr. Arkwright's system of spinning in 1775—this is just enough of information:

for his purpose, and here he stops. He appears to have searched no farther after their history, though one of them was attributed to Hargrave. Certainly they were first combined in a series of machines, in Mr. Arkwright's factory, and so far his set of machines was a novelty, but he was no more the inventor of them, than the cook who first combined boiled mutton with turnips and carrots, was the inventor of turnips, carrots, and mutton. But, with all these borrowed inventions, and with money at command, it was many years before Mr. Arkwright, or, at all events, before his partners derived any pecuniary profit from spinning, and even when Sir Richard died, in 1792, these combined machines, were, in comparison of those now used, rude and inefficient. Mr. Kennedy began to spin about the time Sir Richard died, and so far from the manufacture having sprung to maturity at once, Mr. Kennedy must know that a spinner of this day, adopting the best received machinery and modes of management, of the year 1792, would very soon find his business a ruinous speculation. The jejune and shallow remark of Mr. Mc. Culloch, in page 9, when speaking of the success which attended Mr. Arkwright's spinning, in the year 1772, and of the series of his machinery, as being, in 1775, so well adapted to produce the intended effect,

in *its most perfect form*, is of a piece with the rest, and arises from the same fundamental error. If, as I have just observed, Mr. Kennedy, using the best machinery of 1792, at this day, were to find the undertaking ruinous, what, in the name of proportion and consistency, must become of the concern, if he were to use the machinery of 1775?

I have already shewn that spinning by rollers was not successful, in 1772, and that the series of machines, have only attained their present state of perfection, that is, their "*most perfect form*," since Sir Richard's death, and, it is really extraordinary, that a gentleman, when revising an article on his own trade, could allow such gross errors to escape his notice.

But, not content with attributing to Sir Richard the inventions of Highs, Butler, Lees, &c. and the inventions and improvements made since Sir Richard died, Mr. Mc. Culloch has attributed to him improvements which are not yet made. In page 6, speaking of the water frame or roller spinning, which he calls the spinning frame, he says, "But this deficiency was soon after supplied by the invention of the spinning frame—that wonderful piece of machinery, which spins a vast

“number of threads, of any degree of fineness, and hardness.” Now, a vast number of threads, of the fineness of even one hundred and fifty hanks, were never yet spun upon the water frame, indeed, threads as fine as seventy five hanks, are rarely, if ever, spun upon it, and, I may say, that the water frame is not adapted, at this present time, (though, under the name of the throstle, it has been greatly improved since Sir Richard died,) and consequently is not used, for spinning threads as fine as seventy five hanks.

In attributing to the water frame, spinning frame, or throstle, the power of spinning fine numbers, that is, above eighty hanks, Mr. McCulloch must, of necessity, admit he is mistaken. He might just as well attribute the invention of the mule—a machine which *will* spin the finest numbers—to Mr. Arkwright, though it is quite notorious the invention belongs to Crompton.

Mr. McCulloch says, in page 11, that “The Court, however, refused to grant Mr. Arkwright a new trial, on the ground, that whatever might be the fact, as to the question of originality, the deficiency in the specification, was enough to sustain the verdict.” Wrong again, as Mr. Serjeant Adair, and Mr.

Justice Buller, shall prove. When moving for a new trial, on the 10th of November, 1785, Mr. Serjeant Adair, (Mr. Arkwright's counsel) in speaking of the trial, in June, 1785, says, "The chief force of the evidence was then against the originality of the invention, and, the evidence under those circumstances, was a very considerable degree of surprise to Mr. Arkwright; upon application to him, we found him not prepared with witnesses, they not being then in town to contradict, and, he had reason to believe, the learned Judge would set it right, and the verdict of the jury, which was a general verdict for the Crown, was principally founded upon that kind of evidence."

Mr. Justice Buller.—"Which?"

Mr. Serjeant Adair.—"*Upon that point, as to the originality of the invention.*"

Mr. Justice Buller.—"I cannot say that, nor can I say, if you ask now, which point it was, they were all so strong."

Mr. Serjeant Adair.—"I will state to your Lordship one ground upon which it appears strongly to me, if I am rightly instructed, it *was the principal point upon which the jury*

“*rested their verdict*: I am instructed, after
 “ your Lordship had stated the evidence upon
 “ the one side and the other, that related to the
 “ specification in the patent, that your Lord-
 “ ship then paused, stating to the Jury, if they
 “ were sufficiently satisfied upon that point, it
 “ rendered it unnecessary to trouble them with
 “ any more evidence in the cause; after which,
 “ I am instructed, the Jury desired your
 “ Lordship to go through the whole of the
 “ evidence.”

Mr. Justice Buller.—“ I will state how
 “ that was—you state it very clearly and ac-
 “ curately, it appeared to me, after we had
 “ been four or five hours in the cause, the de-
 “ fendant had not a leg to stand upon; I
 “ thought it a point of duty and decency in
 “ me, in such a cause, and of that conse-
 “ quence, and where it had been tried before
 “ two respectable Judges, who held a differ-
 “ ence in sentiments, that I should hear it
 “ out.”

Mr. Justice Buller says, it appeared to
 him, when the trial had *gone on for four or
 five hours*, that Arkwright had not a leg to
 stand upon. Now, the *first evidence given on
 the trial*, was upon the second and third
 issues, viz. that *it was not a new invention, and*

was not invented by Arkwright, and the first twenty-four witnesses examined, amongst whom were Highs and Kay, gave evidence as to the originality of the invention. Mr. Bearcroft's address to the Judge and Jury, and the examination of these twenty-four witnesses would take up four or five hours, or more, and therefore, in the opinion of Mr. Justice Buller, the evidence on the *originality of the invention, was decidedly against Mr. Arkwright*, and did "not leave him a leg to stand upon." Mr. Arkwright, in the trial in the Common Pleas, in the preceding February, had proved the sufficiency of his specification, to the satisfaction of the Court, and had got a verdict upon that issue. The *same* witnesses who had proved his specification *sufficient* on the trial in February, were in Court on the last trial in June, and gave evidence to the same effect as before, and the jury on this last trial apparently did think the specification sufficient. For the information of those of my readers who have not the printed trial to refer to, I will here state, the order in which the speeches and evidence were delivered. Mr. Bearcroft, on opening the case, first addressed the court, twenty-four witnesses were then examined for the Crown, on the question of originality of invention, next, thirteen other witnesses were examined for the Crown, on

the question of the specification, Mr. Arkwright's "Case," printed in 1782, was then read, Mr. Serjeant Adair next addressed the Court, and produced eleven witnesses on behalf of Mr. Arkwright, *three of these, gave evidence on the originality of invention*, and eight on the sufficiency of the specification, Mr. Bearcroft again addressed the Court, and replied to the evidence adduced for Mr. Arkwright, and Mr. Justice Buller, afterwards, summed up the evidence. In summing up, he went through *the evidence relating to the sufficiency of the specification*, FIRST; and, when he had gone through it, he inquired of the Jury, if they were satisfied the specification was insufficient, if so, he said that would put an end to the cause, and it would be unnecessary for him to sum up the evidence upon the question of originality of invention. The Jury replied, they wished him to go into the other evidence, which is a strong indication *that they thought the specification sufficient*, and that, so far, they were with Mr. Arkwright. This is a very important circumstance, and any person who has the curiosity, may easily verify what I state, by looking into the report of the trial. But, when the Judge had gone through the remainder of the evidence, namely, *that respecting the originality of invention*, they immediately gave a verdict for the Crown, and,

against Mr. Arkwright ;—a demonstration, if any there can be, that the Jury decided the matter, on the ground that Mr. Arkwright was not the inventor; the Jury, as well as Mr. Justice Buller, found, that upon the question of the originality of the invention, Mr. Arkwright had not a leg to stand upon.

Mr. Mc. Culloch says, in page 11, "Having no idea that any attempt was to be made to overturn the patent, on this new ground, (the originality of invention,) Sir Richard's Counsel were not prepared with evidence to repel this statement." He also says, in page 9, that he has bestowed "a pretty attentive consideration upon the various proceedings relative to this subject." Now, after this "pretty attentive consideration," what does he assert?—That Sir Richard Arkwright "*had no idea that any attempt would be made to overturn his patent, on the new ground,*" namely, "that of prior invention," see page 11. I will transcribe for him some extracts from the process, with copies of which Sir Richard and his attorney must necessarily have been served, before the trial, (but, in fact, they are the points which he himself takes, and which he himself puts in issue by his plea,) and then I will ask the reader, what he thinks of Mr. Mc. Culloch,

the Edinburgh Reviewer, and his "pretty attentive consideration." The process is dated February 12th, 1785, and contains the following, " Provided always, and the said letters patent were, and should be upon this condition, that if at any time during the said term thereby granted, it should be made appear to us, our heirs or successors, or any six or more of our, or their privy council, that our grant was contrary to law, and prejudicial or inconvenient to our subjects in general, or that the said invention *was not a new invention* as to the public use and exercise thereof, in that said part of our kingdom of Great Britain, called England, our dominion of Wales, and town of Berwick-upon-Tweed, and also in our colonies and plantations abroad aforesaid; or *not invented and found out by the said Richard as aforesaid*, Then upon signification, or declaration thereof to be made by us, our heirs or successors, under our or their signet, or privy seal, or by the lords and others of our or their privy council, or any six or more of them, under their hands, the said letters patent should forthwith cease, determine, and be utterly void to all intents and purposes, any thing therein before contained to the contrary thereof in any wise notwithstanding. And whereas we are given to

“ understand that our said grant is prejudicial
 “ and inconvenient to our subjects in general,
 “ and that the said invention at the time of
 “ granting our said letters patent, *was not a*
 “ *new invention*, as to the public use and ex-
 “ ercise of it, within that part of Great Britain
 “ called England, and that the same *was not*
 “ *invented and found out by the said Richard*
 “ *Arkwright.*” I shall also subjoin *verbatim*,
 the issues which were joined on the record.
 “ And now at this day, that is to say, on the
 “ morrow of the Holy Trinity in this same
 “ term, to which day the said Richard Ark-
 “ wright had leave to imparle to the said
 “ writ, and then to answer the same before
 “ our said lord the King in his Chancery
 “ at Westminster, comes *the said Richard*
 “ *Arkwright*, by William Mitford, Esquire,
 “ his attorney, and says, That the said letters
 “ patent, so as aforesaid granted to him, the
 “ said Richard Arkwright, and the inolment
 “ of the same, by reason of any thing in the
 “ said writ of *Scire Facias* alleged, ought
 “ not to be cancelled, vacated and disal-
 “ lowed, and the said letters patent restored
 “ into his said Majesty’s Chancery, there to
 “ be cancelled; because he says, that the
 “ said grant of our said lord the King is not
 “ prejudicial and inconvenient to the subjects
 “ of our said lord the King, in general, as by

“ the said writ of *Scire Facias* is supposed,
 “ and of this the said Richard Arkwright puts
 “ himself upon the country, &c. And Richard
 “ Pepper Arden, Esquire, attorney-general of
 “ our lord the King, who prosecutes for our
 “ said lord the King, in this behalf, being
 “ present here in court in his own proper per-
 “ son, doth so likewise: And the said Richard
 “ Arkwright further says, that the said inven-
 “ tion *at the time of the granting of the said*
 “ *letters patent, was a new invention* as to the
 “ public use and exercise thereof within that
 “ part of Great Britain called England, and
 “ of this he also puts himself upon the country,
 “ &c. and the said Richard Pepper Arden,
 “ who prosecutes as aforesaid, doth so like-
 “ wise. And the said Richard Arkwright
 “ further says, *that the said invention was*
 “ *invented and found out by him the said Rich-*
 “ *ard Arkwright*, and of this he also puts
 “ himself upon the country, &c. and the said
 “ Richard Pepper Arden, who prosecutes as
 “ aforesaid, doth so likewise: And the said
 “ Richard Arkwright further says, that he
 “ hath, in and by the said instrument in writing,
 “ so by him inrolled in the High Court of
 “ Chancery of our said lord the King, par-
 “ ticularly described and ascertained the nature
 “ of his said invention, and in what manner
 “ the same is to be performed, and of this he

"also puts himself upon the country, &c.
 "And the said Richard Pepper Arden, who
 "prosecutes as aforesaid, doth so likewise."
 Here then, Sir Richard had the same notice,
 and to as full an extent, as any litigant has,
 or *can* have, as to what are the questions to
 be tried. And further, on the motion for a
 new trial, made on the 10th of November,
 1785, Lord Mansfield said, in answer to Mr.
 Serjeant Adair's reasoning, "The questions to
 "be tried, are stated upon record—there is not
 "a child, but must know they were to try the
 "questions there stated." But, if Mr. Ark-
 wright did not know an issue, as to the
 originality of the invention, was to be tried,
 why did he bring three witnesses of his own,
 to speak to that question? Richard Pridden,
 John Haggett, and Thomas Bell, were pro-
 duced by him on the trial, and gave evidence
 as to the originality of the invention. Why
 should he have produced them, if he never
 dreamed that *that* inquiry would be gone into?
 These three were, or had been, Mr. Ark-
 wright's workmen. I dare say Mr. Mc. Cul-
 loch will admit that these men knew upon
 what point they were going to London to
 give evidence. How strange it is, that Mr.
 Arkwright's own witnesses should know what
 questions were about to be tried, and that he
 should have "no idea" of them!! Even the

writer he cites, in the Beauties of England and Wales, and whose statements he says are of "the highest authority," informs us, that the "combination against Sir Richard Arkwright, endeavoured to destroy the validity of his patent, by contesting the originality of the invention," and he tacitly admits, that this was the principal point tried, for, he sinks the question of imperfect specification entirely, and only mentions the former. See page 84 of this work. If, as Mr. Mc. Culloch holds out to the world, the insufficiency of the specification was the point on which Sir Richard finally lost his patent, then, the work which he states to be of the highest authority, is *not* of the highest authority, for, Mr. Mc. Culloch, himself, is of *higher*, inasmuch as he sets up a story which is at variance with it. He is at war with his own authorities. If we take him at his word, and believe it *to be* of the highest authority, then it confirms me, and helps to drive him out of the contest. To this result does the effect of the testimony he cites on his own behalf, tend. His conduct, in calling up this writer to support him, reminds one of Lucian's story of the magic broomstick, which would fetch, on receiving the requisite command, a pail of water; Eucrates having ordered it to perform the required duty, was obeyed; but, not having informed himself of the formula by

which its operations were to be stopped, it continued its labours, in spite of all he could do to prevent it, and finally flooded him out of the house.

It seems to be a common occurrence with my opponent, after bringing forward his authorities, immediately to desert their guidance. He has so served Mr. Kennedy, and the author of *The Beauties of England and Wales*, and, in the part of his article which I am now examining, after bringing forward another of his chief supports, Mr. Serjeant Adair making an assertion which is one of the corner-stones of his argument, he immediately afterwards flatly contradicts him. Mr. Mc. Culloch says:—
 “The court refused to grant a new trial, on the ground that whatever might be the fact as to the question of originality, the deficiency in the specification was enough to sustain the verdict.” But, what does the Serjeant say? He says, (see page 117, at the foot,) “It” (the originality of the invention) “was *the principal point upon which the jury rested their verdict* ;” and Mr. Justice Buller says, “It appeared to me, when we had been four or five hours in the cause, the defendant had not a leg to stand upon.” This observation, and the four or five hours spoken of, refer to the originality of the invention, that

having been the first inquiry gone into, and the point upon which the first twenty-four witnesses were examined, as I have before shewn. Yet, the Edinburgh reviewer tells the public the court decided the cause, and refused a new trial, purely on the ground of "the deficiency in the specification." Can more dishonesty of citation, greater misrepresentation and falsification of fact, be any where found ?

Perhaps the most indefensible expression, the most unreasonable and the most unfounded, (considering what facts he has to produce in support of it,) used by Mr. McCulloch, is the one where he speaks of the sworn testimony given by Highs and Kay, on the trial, as having been "manufactured for the occasion." Highs had charged Mr. Arkwright, in Mrs. Jackson's parlour, nine years before the first trial, and thirteen before the trial of which he is speaking, in the presence of Rothwell, with the same thing to which he deposed, and the particulars of which, that so much calumniated testimony explained. This, he had done before he knew that whoever had the machine it would be of any eventual benefit to them, and long before he could have any idea his evidence would be requisite to establish the charge he then made.

It is very probable he had spoken of it publicly before, and that such was the reason of Rothwell's bringing them together. But no one can doubt that he spoke of it afterwards; he would never tell the man whom the statement chiefly affected he had pirated his invention, and afterwards close his mouth about it in everlasting silence. Thirteen years is rather a long time beforehand, Mr. Mc. Culloch, to manufacture evidence, particularly when no "occasion" to bring that manufacture into use is then contemplated, and does not occur until at least nine or ten years afterwards.

Highs left England, on the 1st of November, 1780, that is, *before* the actions were commenced. He went to Ireland, to direct and superintend the making of cotton-spinning machinery, for Baron Hamilton, who was then building a factory upon his Estate of Balbriggan, in the county of Dublin, where there was a powerful waterfall. From this situation, he was unexpectedly and hastily summoned to England, at a very short notice, as a witness in the actions then commenced at the suit of Mr. Arkwright. Such was the hurry, and so great the urgency of the summons, that he left Balbriggan immediately, and rode down to Dublin on a hunter, with all expedition, where he embarked for England.

So that Highs, and Kay and his wife, had marvellous little time, in which to "manufacture their story," and it is quite miraculous that it should hang so well together, and not contradict itself here and there, considering that Kay, as may be inferred from his examination, and perhaps his wife also, do not seem to have had the brightest understandings in the world.

But, how very foolish it was in the defendants, to have sent to Ireland for manufactured testimony! Are England and its hordes so pure, so immaculate, that it could be nowhere obtained from among them? And, if *they* were unable to supply the commodity, it would have been wise to have tried Scotland. The emergency was urgent, and they were incurring a serious risk, in making Ireland the scene of their wicked enterprise. There were no steam-packets in those days, and the danger of the messenger in his journey to find a witness, and of the witness in his journey to the trial, being interrupted by winds and waves, was not small. They might have feared that Providence would frown with his storms and tempests upon their unholy mission. Besides, it is quite an imputation upon Ireland, that they should have selected that country out of all the three kingdoms, for the *locus in quo*.

But more, how extraordinary and how dangerous it was, that, when they got there, finding no one in Dublin that suited their purpose, they should proceed to Balbriggan, and make their attempt upon a man in a respectable situation of life, under Baron Hamilton :— one whose character was without a stain,— nothing could be said against him on the trial when he was examined, but that he had been in company that Sir Richard Arkwright had himself kept. An honest man like him would have been likely to denounce their attempt,—to have proclaimed to the world the infamy of their procedure,—and ruined their cause. To reconcile such conduct with Mr. Mc. Culloch's supposition, would be to believe the defendants insane, and Mr. Arkwright would have been much better employed in endeavouring to get them sent to Bedlam, than in bringing actions against them in the Kings' Bench.

The very proof that Highs and Kay *had not* "kept the important secret," as Mr. Mc. Culloch says, "closely pent up in their bosoms" "more than twice the period of a Pythagorean" "novitiate," and that they had proclaimed it far and wide, is furnished by the defendants having a knowledge of it, making it part of their defence, and using the exertion of sending to Ireland for a witness, who had, for so

many years, made public, and unvaryingly persisted in, the account of the matter which, when called upon, he delivered on oath, in a court of justice.

Mr. Mc. Culloch says, (page 12) "can "any one imagine for a moment, that persons, "with so many and such overpowering temptations, to speak out," &c. should not have done so? Why they *did* speak out. The circumstances stated abundantly prove it. What would you have had them do more? Kay did not confine himself to speaking, but, felt himself of so much importance in consequence of possessing this "Secret," as to have almost used menace with the view of making Sir Richard take him into partnership. After that there were only two modes of dealing with him,—either to bribe him or to awe him into silence, and we have the fact that he was frightened out of the country.

I rather wonder Mr. Mc. Culloch should not have asked a further question; namely—What should have prevented Highs himself from establishing the roller-spinning?—It was the singular good fortune of Sir Richard Arkwright to be uncommonly successful in the forming of his partnerships, and in obtaining a command of capital. The proportion of

men in his circumstances, who would be able to do so to an equal extent, is small. With the water-frame, in its rude state, without money to purchase the material to be manufactured, or credit to obtain it until, in its manufactured state, it was disposed of and payment received, the instrument would have been a useless piece of lumber. It appears, by Highs' evidence, that it was poverty that prevented him from making use of it, but that it was his full intention to have done so, as soon as he could have found "a friend to assist him." I shall afterwards show, in some few memoirs I have collected respecting his life, that an arrangement to that effect had been entered into, but that the gentleman, who was to have furnished capital for the undertaking, at the very crisis when they were about to embark in it, was unfortunately drowned. There is also another very sufficient answer to the question, to be found in the peculiar disposition of the man. He was of a quiet, modest, unassuming, contemplative character, and would have shrunk from the busy, bustling pertinacity of hunting out and cementing partnerships, and would have been easily dejected or discouraged at meeting with rebuffs and want of success, in the pursuit of them. Neither was he the kind of man to prevail upon others to embark with him in such

adventures. He did not possess the assurance, the plausibility, the prepossessing manners, nor the faculty of dressing up his projects in the pomp of promise, which are so indispensable for that purpose.

In this inquiry into the invention of the roller spinning, it is my wish to give Mr. Mc. Culloch the fair benefit of any arguments which makes for him, and I have stated his strongest, which he had wholly overlooked; I have patiently examined the authorities he cites, and given them in this treatise, more fully than he himself has done. As far as any arguments arise out of them on the side of his hypothesis, I have been desirous to state them myself, and give them every weight, though contradicting my own, with a view, not to successful controversy, but to the establishment of truth. I confess, however, he appears to be so totally unsupported by his authorities, or by circumstances, that I have not been able to obtain from them a tolerable argument on his side of the question. Upon considering his authorities, for his opinion they all appear to be off-shoots and ramifications from Mr. Arkwright's "Case." In that, of course, he claims the invention. He did so by his trials. The "Case," and his litigations, are, substantially, one authority; and

what is that ? Mr. Arkwright's own assertion, to support his monopoly. If Mr. Mc. Culloch had a score of authorities, all coming from the same source, they would only be substantially one. It is not because a story, false and unfounded in its origin, has been printed a score of times, that it derives any greater authenticity from that circumstance. They are all cumulative upon one support, and when that fails, where are they ? When the rotten and putrifying trunk falls to the earth, what becomes of the branches ?

As to the supercilious way in which Mr. Mc. Culloch affects to speak, in his article, of the evidence of some of the witnesses for the crown, I wish him joy of it, after the full examination of circumstances here entered into, it may satisfy the reader, of what authority the reviewing phrase of "We see no good reason, &c. &c." may sometimes happen to be.

Mr. Mc. Culloch tells us there was a trial, in 1772. I shew that there was no such thing. He says Mr. Arkwright did not know that the originality of the invention was to be tried. I copy the process in which that knowledge stared him in the face. He also says, in a peculiar phraseology, he has "access to know ;" what the access was, he does not vouchsafe

to inform us, and the knowledge so obtained, comes from the same source, and rests upon the same base, as his former authorities. What a foundation of sand that is, has, I hope, been sufficiently shewn. The main stay, and bulwark of his case, the false and deceptive meteor, which has been partly instrumental in leading him into such a quagmire of error, is, probably, the supposed trial in 1772, where, as he says, the originality of the invention of the roller-spinning was tried, and found in favour of Sir Richard Arkwright. He may have been puzzled to reconcile what he conceives the result of this trial to have been, with that of the one in 1785, and not being able to do so, to his own satisfaction,—not being able to loose what a certain worthy magistrate in one of the eastern counties is reported to have called *the Gordon Knot*,—he cuts it,—and smooths and adjusts all difficulties, by making the first trial to turn upon originality of invention, and the last upon the insufficiency of the specification. No such event as the first trial, ever existed, but in the brain-sick imagination of some dreamer, as appears by the result of my search. What then becomes of the imagined difference between the two,—of his efforts to reconcile it, and of the false and unfounded conclusion to which they have conducted him? I do not see what

resource he has remaining, but to seize upon Mr. Arkwright's "Case," as a *tabula in naufragio*. In doing so, he will remind one strongly of the man in Hierocles, who, when the ship was foundering at sea, seized upon one of the anchors to save himself from drowning. I give him Mr. Arkwright's "Case," and make him a present of the specification and affidavit into the bargain.—The "Case" asserts that Mr. Arkwright produced an invention for carding and spinning the materials; if that does not mean *invented* something that would perform that act, then, the "Case" and I are both agreed, but, taking it in the strongest sense against myself, I interpret it *invented*, and the specification and affidavit say the same. Out of five machines, particularized in this invention, twelve witnesses, examined upon their solemn affirmations and oaths, prove that four were *not* invented by him; and, if four out of five, in contradiction to his assertion and affidavit, are proved not to be his, what man alive would believe that the fifth belonged to him? But my case does by no means rest here; I produce three witnesses in addition, who positively swear the fifth *does not*, and I corroborate their evidence, by the deposition of an old man, yet living, and a mass of circumstantial evidence, which almost precludes the possibility of deception. I make

bold to say, there is not one fact in ten thousand, which historians have communicated to us, respecting which, the evidence both circumstantial and direct, is so irresistible.

I conceive, that to have refuted Mr. McCulloch's theory, would have been to have examined his authorities simply, and to have shown how inconclusive, how suspicious they were, but I have gone farther, and adduced a case, which is, of itself, so strong, that little merit can be claimed for the statement of it, or the manner of treating it. I deceive myself, very much, if it would not have dissipated one of much stronger texture than that of Mr. McCulloch. I have endeavoured to arrive at the truth, and I hope that, to the candid and reflecting inquirer, and to him who scrutinizes and considers the whole argument, I shall have satisfactorily established what was stated in my former publication, and has been since controverted in the Edinburgh Review by my opponent, namely, that Sir Richard Arkwright did not invent the roller spinning, and, that it was invented by Thomas Highs.

It may seem extraordinary that Mr. McCulloch should have undertaken to write upon a matter respecting which he is evidently so

very ill-informed. Authors select their subject in general either from a predilection for it, from peculiar facilities of knowing more about it than others, from professional inducements, or from a direct prospect of adequate remuneration. In any one of these cases, we should hardly expect that so many errors and inaccuracies, such ineffective and contradictory arguments and citations, would be found, as is the case with the article under consideration. The reader would think, that the ardour and enthusiasm of a volunteer, would hardly have been exerted in a cause, with the merits of which he was so little acquainted, nor the caution and wariness of the stipendiary have prompted him to enter spontaneously upon a field, of whose weak and strong positions, he was so evidently ignorant. It is said, all are eloquent upon their favourite topic, and we may say, few men, with tolerable abilities, in the situation of Mr. Mc. Culloch, with his habits of composition, and his conversancy with lecturing and dissertation, would have handled a subject in the manner he has in the present instance, if it had lain in the way of his peculiar studies, or if he had, with the feeling of an amateur, devoted to it, time, inquiry, and research. These surmises, which naturally arise in the mind, on a perusal of his article, I happen to have the facilities of con-

firming. I understand the secret history of the matter is this,—Mr. Kennedy has recently become intimate with the family of Mr. Arkwright, and the origin of the article is, either a wish on the part of Mr. Kennedy to stand well with them, by procuring the insertion of a defence of Sir Richard, in a popular Review, or pique at my having found game in a beat which he had gone over and missed of it, or a design of supporting the statements in his essay, or partly from all these causes. The article was sent to Mr. Kennedy for perusal and revision, before it was printed, and from these circumstances, and the mention of the “access to know” and to his,—Sir Richard’s family, the inference that the writing of it was suggested by Mr. Kennedy, is almost inevitable. It is not because my book came in regular course to be criticised in the Edinburgh Review, nor because the subject on what it dilates attracted the reviewer’s attention;—it is not because its statements are unfounded, nor because Mr. Mc. Culloch had a strong conviction that they were erroneous, that notice was taken of it in that publication. No.—It is because Mr. Kennedy happened to know Mr. Mc. Culloch, and because the insertion in the Edinburgh Review, of a defence of Sir Richard Arkwright, would be gratifying to his family, and, at the same time, support

and confirm the views asserted by Mr. Kennedy in his essay. Such are the hidden springs—the secret origin of the article. The readers of the *Edinburgh Review*, good unsuspecting people, would never have dreamed of there having been any other cause for its appearance, than that the book which it criticises, had been found among others, lying on the bookseller's table. The account of its origin is in perfect unison with the tenor of my prefatory remarks, that personal feelings, of one sort or other, often mix themselves up with these matters, and that, probably, many of the articles in the leading *Reviews*, have a secret history if it could be got at. But out of evil comes good;—the question discussed in these pages may have attraction to some person at the present or a future time, and, as I apprehend few more lights will, after this late day, be let in upon it, a concentration of the evidence and the argument, with reference to it, may save him some trouble, and, possibly, prove interesting. The causes of that having been attempted, and of my having made more minute inquiries than might otherwise have been the case,—for instance, seeking out the son of Highs,—searching the patent office, &c. &c. are chiefly attributable to the article to which I am replying.

Mr. Mc. Cullock, not content with controverting my statements, with respect to the invention of the roller spinning, has also called in question, and contradicted another important fact stated by me, respecting the cotton-spinning machinery. He has denied to the inventor the merit of the invention of another machine, only inferior to the former in ingenuity, and of perhaps more extensive application to manufactures.

The invention of the spinning jenny, the machine of which I speak, constitutes one of the most memorable eras, in the career of industry. It is the instrument by which, (so far as we have any authentic and trustworthy evidence,) the human individual was first enabled, for any permanently advantageous and profitable purpose, to spin the fleecy and fibrous substances of the animal and vegetable kingdoms,—be they wool, cotton, or flax,—into a plurality of threads at the same time, and by one operation. Attempts had previously been made to effect this object, but they had turned out unsuccessful and abortive, and even the history of these, does not go back more than a century from the present time,—a period within the whole of which, there has been no want of skilful and expert mechanics, to execute the conceptions of any ingenious designer or con-

triver in any department of mechanics. But, no details or descriptions of what had been done in such attempts, no delineations, models, or machines were known to the public;—all knowledge of them had, as it were, perished long previously to 1763. They were merely experiments, and were found neither to save time, nor economize labour. They were inferior, in point of production, with the same consumption of time, and the same exertion of industry, to the old method of spinning, and were, consequently, given up and abandoned as useless and unprofitable. For generations upon generations, through ages and alternations of barbarism and refinement, no skilful designer, no fortunate artist had hit upon the method of enabling a single person to furnish to the weaver, the materials for his labours, by any other than the tedious and irksome process, of spinning from morning to night, a single thread. Of the many and multifarious descriptions of bodily labour scarcely any would seem so tedious and feeble, so wearisome and inefficient, as this employment. In digging the earth, in ploughing, in reaping, in building, in the various employments of husbandry, the labourer is animated and encouraged, by the consciousness of the progress he is making, he sees the effects of his industry, rise in cheering advancement and progression around him;

but we can conceive nothing more cheerless and discouraging, than for an able-bodied person, employed in hand-spinning, to take a survey, from time to time, of the slow and unsatisfactory progress he appears to be making. From this inefficient and vexatious toil, the spinning jenny was the first machine that enabled man to escape, and in its earliest and rudest state, to perform in his own person, the work of six in the place of one. Thread, whether known, as in the woollen and cotton manufactures, by the names of yarn, warp, weft, or twist, or, as in the silk and linen manufactures, by the various technical names which are given it, is, of course, the material—the element, the *sine qua non* in the weaving or fabrication of cloth of every kind and description. And, when we consider to what an extent the latter, in its thousand forms and varieties, administers to the wants, the comforts, the conveniences, and the luxuries of life, we cannot but entertain a feeling of pleasure and satisfaction, that the enjoyments it affords have been by the cheap and abundant production of its elementary part, brought within the reach of so many millions both of the present and future times, who would otherwise have been unable to purchase or obtain it, at least in the present quantities and state of perfection. Instead of making

a difficult and niggard entrance within the walls of the cottager, it now surrounds him in abundance, while the possessor of more ample means is enabled, at a reduced expense, to clothe the persons of his family or adorn his domicile with draperies of the richest hues, and most varied and tasteful beauty. Whether, in enabling the poor to protect themselves with effect from the inclemency of the seasons, the middle classes to assume a garb and respectability of appearance which, with the same income, would have been before impossible, or the gentleman of moderate fortune to rival, in this respect, asiatic luxury, the invention and improvement of the spinning machinery is the great object to which we are equally to address our observation. The consumers are enabled, at a less expense of labour, and exchangeable value from themselves, to obtain what would otherwise have been unattainable, to a degree which it would be very difficult to define, and which is continually varying, perhaps, at the present time, diminishing. To this cause is attributable, in a great measure, the difference between the bare and naked appearance of the interior of houses of the common description fifty years ago, and the carpeted floors, the looped hangings, and the festooned curtains which adorn those of the like class of inhabitants at

the present day, as well as the neatness and decency of dress which distinguish the poorer classes now, as compared with its plainness, coarseness, and raggedness, at the former period. The first step towards this mighty effect, was made when the spinning-jenny was contrived; the next, when the water-frame, spinning-frame, or roller-spinning, was invented; the third, when they were combined in the mule; and the fourth, when the stupendous powers of the steam-engine were applied to develop their several vast capabilities.

The spectacle they present in their state of union and combination, is not merely that of a most potent agent employed to perform the labours of man in his stead, but that agent applied, with all its gigantic force, to set in motion machines which are, themselves, to the extent of one hundred and fifty or two hundred fold, *abridgements* of human labour. It is this combined efficiency, this compound ratio of operation and production, which has been the great cause of the unparalleled extension and increase of the cotton manufacture, within the last fifty years.

The first important step that was made in the progress to these great effects and consequences, was the invention of the spin-

ning jenny.—It was the sole machine in general use, for spinning weft for fustians and other heavy articles, from 1770 to 1810, a period of forty years, since which time it has, in the cotton trade, been in a great measure superseded by the mule, but its use is become more extensive, as I am informed, in the woollen, than probably it ever was in the cotton manufacture. It is used in the former, not only to spin the woollen weft or transverse threads, but also the warp or longitudinal threads. For the latter purpose, the manufacturers were never enabled to use it advantageously in the cotton manufacture, it not being capable of giving that hardness of twist, and firmness, which was necessary to form the threads of the warp.

So remarkable a circumstance as the invention of this machine, naturally attracted my attention while engaged upon my former work, respecting the cotton manufacture. It was the first step in that department of industry, that decidedly marked the advance from mere manual toil to a more enlarged, multiplied, and compendious mode of production, and it appeared to have led the way, at a very short interval, to the invention and introduction of more recondite and complicated machines, by shewing to the world

what might be effected in that province of invention, and holding out a stimulus to the exercise of ingenuity in the further pursuit of similar contrivances which the then existing state of the manufacture powerfully seconded. I entered upon the examination of its early history, and as to where and to what extent it was first introduced, and to whom the gratitude of multitudes was so justly due for the benefits rendered, both to the consumer, and the labourer generally, by its invention, with the most unprejudiced and impartial consideration. I knew, from the report of various writers and the common accounts, that Hargrave had constructed a jenny in 1767, and taken out a patent for it in 1769, but I had incontrovertible testimony,—testimony which I could no more doubt than I can half of that upon which I am in the habit of acting every day of my life, that spinning jennies had been made, and that too for various families, some of them not unknown to me, for two or three years previously to the time which common report, and the usual accounts assigned for the earliest period of the invention of the jenny by Hargrave, and no less than *five* years before he took out his patent. And under such circumstances, that I should not have denied Hargrave's claim to the invention, and should have been guilty of the injustice of

withholding from the real inventor the merit and the reputation which was justly and rightfully his due, would, indeed, have been extraordinary.

I did not request my readers to take upon trust my own conviction, or my unsupported statement, with respect to it, but I fortified my narrative with the deposition of an old man, whose name and residence I mentioned, who would have had no objection to answer any interrogatories which Mr. Mc. Culloch might have caused to have been put to him, and, as to his character and credibility, and the reliance to be placed upon his statements, I should have been rather desirous that Mr. Mc. Culloch had informed himself with respect to them than otherwise.

Mr. Baines, the historian of the county of Lancaster, had the same evidence before him as Mr. Mc. Culloch, and was satisfied of the erroneousness of the vulgar account, and rejected it, and, I think I may say, without flattering Mr. Baines, or unjustly disparaging my opponent, that the estimate of the former is quite as valuable and trustworthy as that of the latter. It may arise from a feeling of self-sufficiency, I admit, but I think the probability is, that if Mr. Mc.

Culloch had neither had the writing of the article suggested, nor the tone and character of it given to him by Mr. Kennedy, he would have arrived at the same conclusion with respect to the matter at issue, as Mr. Baines. But, whatever may have been his motives, it is for me to ascertain and inquire, what are the accuracy and authenticity of that account, which he has set up in contradiction to mine.

He informs us, (Ed. Rev. p. 5) "The tedious and expensive method of spinning by the hand, was the grand obstacle in the way of the extension and improvement of the manufacture. Insurmountable, however, as this obstacle must, at first sight, have appeared, it was completely overcome by the unparalleled ingenuity, talent, and perseverance of a few self-taught individuals. Hargraves, or Hargrave, to whom we have already alluded, seems to have led the way in this career of discovery. In 1767, he had constructed a machine called a spinning jenny, which enabled a spinner to spin *eight* threads with the same facility that one had been previously spun; and the machine was subsequently brought to such perfection, as to enable a little girl to work no fewer than from eighty to one hundred and twenty spindles."

“ With the exception of Sir Richard Ark-
 “ wright, perhaps, there is no individual to
 “ whom the manufactures of this country are
 “ so largely indebted, as Hargraves. Never
 “ was the maxim—*c’est le premier pas qui coute*
 “ —more completely verified than on this
 “ occasion. It is true that his machine was of
 “ very inferior powers to those by which it
 “ was immediately followed. But it is not,
 “ perhaps, too much to say, that it was one
 “ great cause of their being introduced. No
 “ sooner had it been seen what a simple me-
 “ chanical contrivance could effect, than the
 “ attention of the most ingenious individuals
 “ was immediately drawn to the subject; and
 “ the path was opened, by following which so
 “ many splendid inventions and discoveries
 “ have been made.”

“ The invention of the spinning jenny has
 “ been ascribed, by Mr. Guest, in his very
 “ meagre, prejudiced, and superficial work on
 “ the ‘ History of the Cotton Manufacture,’
 “ to a person of the name of Highs, or Hayes,
 “ a reed-maker, in Bolton. But he has not
 “ produced a tittle of evidence to shew that
 “ Hargraves knew any thing of Highs; and
 “ as he is admitted on all hands to have been
 “ the first who made the invention public, we
 “ do not see the shadow of a ground for

“attempting to deprive him of the honour of
“the discovery.”

The readers of the *Edinburgh Review* might suppose these paragraphs were the *dicta* of a synod of critics, and that as coming from their council table, the judgment they pronounce precluded all doubt or contradiction, and set the controversy finally at rest—they would be led to think that the question had been minutely and thoroughly sifted, that the pretensions of the rival claimants, and the evidence upon which they reposed had been impartially scrutinized, and that this was the ultimate result, and final dictate, of that elaborate scrutiny and investigation. How they would deceive themselves? there is something amusing in the thought.

•*Parturiunt montes—nascitur mus.*

It is only the assertion of Mr. Mc. Culloch, following the account, (itself ambiguous,) contained in Mr. Arkwright's "Case," and guided by the *pont aux anes* Hargrave's patent. The author of the 'Supplement to the *Encyclopædia Britannica*,' does, certainly, tell the same tale, with some little variation, but as he, in all probability, has had the same guides in view, I cannot consider him a distinct authority. The publication of his article, however, pre-

nedes, in point of time, that of Mr. McCulloch, and I shall therefore examine it first.

It informs us, "There had been several
 "unsuccessful attempts to improve the mode
 "of spinning, before the year 1767, when
 "James Hargraves, whom we have already
 "mentioned, invented the spinning jenny.
 "The idea of this machine is said to have been
 "suggested to him, by seeing a common spinning
 "wheel, which had been accidentally
 "overturned, continue its motion while it lay
 "on the ground. If this was the case, it
 "shows a mind of no common description,
 "which, from such a casual occurrence, could
 "elicit an invention of so much importance.
 "After several unsuccessful attempts to carry
 "into execution the conception he had formed,
 "he succeeded in producing a rudely constructed
 "jenny of eight spindles, turned by
 "bands from a horizontal wheel. In it, the
 "eight rovings were passed between two pieces
 "of wood, laid horizontally, the breadth of
 "the machine, and these being grasped in the
 "spinner's hand, and drawn out by him,
 "formed the rovings into threads. The structure
 "of this jenny was afterwards greatly
 "improved, and it was at last brought to
 "work as many as eighty spindles."

" This machine, although of limited
 " powers, when compared with the beautiful
 " inventions which succeeded it, must be con-
 " sidered as the first and leading step in that
 " progress of discovery, which carried im-
 " provement into every branch of the manufac-
 " ture; changing, as it proceeded, the nature
 " and character of the means of production, by
 " substituting mechanical operations for human
 " labour, and causing the manufactured article
 " to become more and more a product of
 " capital. The progress of invention, after
 " this, was rapid; for when it was seen that,
 " with the aid of the few mechanical com-
 " binations we have mentioned, the spinner
 " had been enabled to increase his power of
 " production nearly eighty-fold, those engaged
 " in other branches of manufacture had their
 " attention awakened to the possibility of in-
 " troducing changes equally beneficial, by an
 " application of similar contrivances.

I admit that this account of Hargrave's
 receiving the first idea of the jenny from
 seeing a spinning-wheel overturned is not to
 be found in Arkwright's "Case." Mr. Banna-
 tyne prefaces it with, "It is said," which is
 as much as to say, he only knows the circum-
 stance from common report, and that of a
 loose description. It is one of those particu-

lars which have been foisted into the original account of the matter, for the purpose of making out a good story. We know what sort of a machine the jenny, with the horizontal draw constitutes; the horizontal draw or pull of the clove is the chief feature in Hargrave's specification and patent,—the substance of his improvement of the spinning jenny; now, what feature of resemblance is there between the jenny specified in his patent, and the common spinning-wheel overturned? In the former, the pulling or drawing out of the thread, is by a clove, moving on wheels similarly to a carriage, and retreating horizontally from the spindles. The pull of the thread from the spindle of the overturned spinning-wheel (supposing the spindle to continue its motion for some time after the wheel was down, about which I have great doubts) would be in a non-descript direction, neither exactly perpendicular, horizontal, nor oblique, but partaking of all three. It would require a pretty powerful, and discursive imagination, to make out any similarity or analogy between the two, or to fancy how the one could suggest the other. I scarcely think, from the ability displayed by Mr. Bannatyne, in his article in the Supplement, he would have thrown a shade of discredit over the tale, by introducing it with, "It is said," if he had

thought his authority for it of any weight. Indeed I should have expected he would have indicated or hinted at it; we all know that without such plain, straight-forward dealing, an author gives his trust-worthiness to the winds. It is possible he might not be aware that the fact, which the tale as it is told purports to support, but which in its origin, it was probably only meant to adorn, was questioned or disputed; and, as he wrote about, or previously to, the year 1816, and a considerable time before the original evidence and information, detailed in my former work, was communicated to the public, he could not know the strength of proof by which the account which it helps to prop up, was combated. Without assigning more weight and importance to the evidence furnished by me than properly belongs to it, I think I may, with all due diffidence, say that it is, at least, of equal force with any that is dependent on such phrases as, "It is said." The story of the overturned spinning-wheel figuring, as it does, in the Supplement to the *Encyclopædia Britannica*, may form a pretty, entertaining story for nursery literature, but, by those who know the shapes and construction of the two machines mentioned, it will never be transplanted into a more elevated region.

The whole of the detail, in the Supplement, as to Hargrave having led the way in the career of inventions, and found out the spinning-jenny, &c. is only the common rumour of the day. Mr. Bannatyné could know nothing of the matter personally, and he does not inform us that he had received any oral information from the contemporaries or acquaintances of Hargrave. He has followed the general account. If an author, in compiling an Encyclopædia, were to pause upon every subject in which he could not procure evidence of first rate character, the work might stagnate for a pretty durable period. In the absence of the best materials, he is obliged to take the best he can find, and, without speaking at all of the subjects discussed in this work, leaving them entirely out of the question, I can say, with confidence, that such a mass of inaccuracies, contradictions, and blunders, have been piled together, respecting the spinning inventions, as I think can scarcely be paralleled, within the same compass, on any other subject. In my former publication, I have devoted an entire chapter to the purpose of indicating and pointing them out. Some of them are quite ludicrous; one book, and that published so early as the time of Sir Richard Arkwright's death, says, that, "Arkwright acquired his wealth by acciden-

*"tally purchasing a piece of mechanism called
 "the spinning-jenny, the invention of an inge-
 "nious carpenter."* Another, published about
 the same time, tells us, that, "*Arkwright was
 "a barber, at Wirksworth, in Derbyshire; and,
 "by frequent opportunities of examining the
 "silk mills, at Derby, acquired the invention
 "of the cotton mills."* A third, '*Rees' Cyclo-
 pædia,*' enlightens the world with the follow-
 ing fact, "*Higgs invented the Crank and
 "Comb."* Lempriere's '*Universal Biography*'
 will have it, that, "*Arkwright invented the
 "Jenny."* Our author, Mr. Bannatyne, in
 the article under consideration, pronounces,
 that John Kay, of Bury, invented the fly-
 shuttle, about 1762. Mr. Kennedy, in his
 essay, contradicts him, and gazettes the inven-
 tion of it as having occurred in 1750. My
 friend, Mr. Mc. Culloch, will have nothing to
 do with either of them, and fixes the date in
 1738. He reminds one very strongly of Dr.
 Harrington's humorous catch upon Non Nobis
 Domine, where the third voice is introduced
 with, "*You are—both—wrong, begin again,
 "begin again, you are—both—wrong."* It
 would really be amusing to hear these three
 gentlemen singing their respective chronolo-
 gies of the fly-shuttle, parodied to suit this
 excellent catch. The alternations of "*Begin
 "again," "I'm sure I'm right," "You are—*

"both—wrong," "I'm sure I'm right," &c. attacking in all directions the burthen of the song, would form a very entertaining and agreeable episode to the present dry enquiry. Mr. Mc. Culloch has, for once, done me the honour to sidle up to me upon this point, and, as I have before stated, followed my guidance in fixing 1738 for the date. My ground for my assertion respecting it, was the authority of a manuscript which I borrowed from Mr. Samuel Kay, of Bury, son of Mr. Robert Kay, the inventor of the drop-box, and grandson of Mr. John Kay, the inventor of the fly-shuttle itself. Mr. Mc. Culloch pays me very little of a compliment in following my guidance where it is so authoritative, but I really think, with deference to his judgment, that my proof on that head is neither so strong nor so convincing as the proofs respecting the roller-spinning and the spinning-jenny.

But, we have not yet done with the very faithful and veridical accounts respecting these inventions, with which we have been favoured. According to the *Mechanic's Magazine*, (vol. 8, page 199) both Mr. Mc. Culloch, I, and all the rest, are wrong, and it is neither Highs, Hargrave, nor Arkwright that is entitled to the laurel, but one Brown, a cabinet-maker, and it is not the roller spinning, but

the spinning jenny, that Arkwright got from him. They most of them agree in this, that whatever the invention was, Arkwright got it from *somebody*. This spark of truth, like hope in Pandora's box, does, after all, remain at the bottom of the unleavened mass. What is so curious, in the account before us, is, that the invention was obtained by Arkwright, whilst he was being shaved, and what is more curious still, while the cabinet-maker was shaving him! The writer says: "The inventor of the spinning jennies was a "poor illiterate cabinet-maker, named Brown, "who, in the act of shaving Arkwright, "suggested the basis of the invention." So that it was not the barber who was shaving the cabinet-maker, but the cabinet-maker that was shaving the barber; and whether he used his chisel or his plane in the operation we are not informed. While Sir Richard's chin was receiving the lather from the hands of the cabinet-maker, his mind was receiving the fructifying words which fell from his lips, and which he afterwards transmuted into the spinning jenny. It speaks volumes in favour of the coolness, and command of thought possessed by Sir Richard, that while undergoing this delicate operation, and being under the hands of one whom we may presume not a very expert operator, he could still take care

that useful hints or communications should not pass unheeded. All the panegyric of his partizan, Mr. Mc. Culloch is distanced by this fact.—Extraordinary events give birth to others, and when the cabinet-makers begin to shave the barbers, who can be surprised that prodigies should occur? But, after all, as Archimedes is said to have found out a problem in hydrostatics, whilst bathing, and Newton to have been led to the discovery of gravity by seeing an apple falling, why should not Brown, the cabinet-maker, have invented the spinning-jenny, over shaving? Happy Mr. Brown, the cabinet-maker, how various were your talents! how few there are whose abilities are so versatile! how few of your own trade could have performed this operation, while his mind was meditating upon mechanics, without doing it at the expense of a slice out of the cheek of the shavée! Mr. Arkwright was fortunate in his operator, or he might have obtained his secret at the expense of his blood; though, nevertheless, like some of the ancient warriors, he might have shewn this honourable scar to after days, and said, this wound I received in that bloody engagement in which I achieved the conquest of the spinning-jenny.

Amongst such a chaotic mass of contradictions as I have above specified, and others

not mentioned, all resting upon the authority of apparently respectable books,—out of such a turmoil of conflicting accounts,—

“ Such a universal hubbub wild,
 “ Of stunning sounds and voices all confus’d,
 “ ————— rumour and chance,
 “ And tumult and confusion all embroil’d,
 “ And discord with a thousand various mouths,”

we may excuse Mr. Bannatyne for not having very distinctly seen his way in the particular instance under discussion. I should have despaired of doing so if I had not been, myself, at one period of my life, engaged in the cotton manufacture, and pretty well acquainted with it for nearly twenty years, and if I had not, from circumstances, obtained peculiar information, not generally known.

Mr. Bannatyne, in attributing the invention of the spinning-jenny to Hargrave, might think he stood on very good ground, and had respectable and satisfactory authority for what he said. He had Sir Richard Arkwright’s statement to that effect, according to his own and the general reading of that statement, and the fact that Hargrave had taken out a patent for the invention. If he had been aware that the statement is completely equivocal, and the patent a mere *caput mortuum*, he might, probably, have distrusted their guidance,

and if he had been in possession of the information I formerly communicated, he would most likely have been of opinion that Hargrave did not exactly "*lead the way*" in this "career of discovery." Under such circumstances, no conclusion upon the subject whatever can be drawn from his article, nor does it affect the controversy in the slightest degree, unless we choose to lay down the rule, that because error has been once printed, it is to guide us for ever.

Sir Richard Arkwright's "Case" tells us,—

"About twenty or thirty years ago, various engines were constructed, by different persons, for spinning cotton, flax, wool, &c. into many threads at once, but they produced no real advantage.

"About the year 1767, one Hargrave, of Blackburn, in Lancashire, constructed an engine that would at once spin twenty or thirty threads of cotton, into yarn, for the fustian manufacture; but, because it was likely to answer, in some measure, the end proposed, his engines were burnt and destroyed, and himself driven out of Lancashire: he afterwards removed to Nottingham,

" and obtained a patent for his engine; but he
 " did not even there continue long in peaceable
 " possession of it. His patent right was in-
 " vaded, and he found it necessary to com-
 " mence a prosecution: an association was
 " soon formed against him; and, being unable
 " to contend against the united power of a
 " a body of men, he was obliged to give up
 " the unjust and unequal contest. His inven-
 " tion was cruelly wrested from him; and he
 " died in obscurity and great distress.

" Mr. Arkwright, after many years intense
 " and painful application, invented, about the
 " year 1768, his present method of spinning
 " cotton, but upon very different principles
 " from any invention that had gone before it:
 " He was himself a native of Lancashire; but
 " having so recently witnessed the ungenerous
 " treatment of poor Hargrave, by the people
 " of that county, he retired to Nottingham,
 " and obtained a patent in the year 1769," &c.

The "Case" was not at all written as
 an enquiry into, or an indication to the pub-
 lic as to who was the inventor of the spin-
 ning-jenny; the subject is introduced only
 incidentally and collaterally. The litigation
 between Mr. Arkwright and his opponents,
 had not the slightest reference to that invention;

it would have been wandering from the point they were contending for; if they had noticed his statements on the subject, it would have been confusing and burthening their own case; to have entered into a refutation of extraneous matter. The jenny formed no part of his patent, it was open to all the world; it was not a subject of contest between the parties, and to have contradicted Mr. Arkwright's statement respecting it, would have been to enter into a controversy with him upon a matter of simple curiosity, nay, it would have been foolishly and unnecessarily to have confused the minds of those, to whom the principal subject of investigation was to be submitted. These are very sufficient reasons why his inaccuracies and omissions, on the subject of the invention of the jenny, were not replied to, or controverted.

This publication was very much circulated; about the year 1785, and may, probably, have caused a general impression, that the spinning-jenny, which is the machine Mr. Arkwright says Hargrave constructed, in 1767, was invented by him. I have, in another part of this work, examined the trustworthiness of this production, and, I think, the result of that examination does not conduce much to establish the fidelity of its statements. But, the

point upon which I have examined it, had reference to the reliance to be placed upon its allegations, where they were immediately and pointedly directed to the author's own interest. I admit there is a distinction where he is speaking of collateral matters, and narrating events, respecting which, the temptation to deviate from strict truth, is not quite so great. But how, if I shew that it was from interested motives that he mentioned Hargrave, and that he has, in the story respecting him, distorted, and unfairly represented the real circumstances of the case?

I have before observed, that the "Case," assumes the tone of an address to the feelings, and, if there be any part of it, more than another, where the author labours the pathetic, it is in his mention of Hargrave. He speaks of his being driven out of Lancashire, of the burning of his engines, of his patent being invaded, of his commencing a prosecution, of an association being formed against him, and of his being unable to contend against the power of this united body, of his invention being cruelly wrested from him, and of his being obliged to give up the unjust and unequal contest, and, after benefiting the country by his genius, dying in obscurity and great distress. Every one must see

that this pathetic story was introduced into the "Case," in order to raise an interest for himself in the minds of the members of the legislature, to whom it was addressed. For he afterwards tells them, that *he himself*, after inventing a spinning-engine, left Lancashire, on account of the ungenerous disposition of the people of that county, that he also had sustained great injury from mobs, *that his patent had been invaded*, that he had commenced a prosecution, that an association had been formed against *him*, and that he had been unsuccessful in a trial in Westminster Hall. His object was, by rousing the public sympathy in favour of Hargrave, to catch in his own person the fruits of their commiseration for the former.

That Hargrave died in distress, is much to be lamented; he was an ingenious man, and the inventor of the crank and comb, which I consider to be decidedly the first in point of contrivance, of any of the component parts of the carding-engine. But, it may be asked, if this sorrow for Hargrave was real, and not inserted in the "Case," merely to serve himself,—why had not he, Mr. Arkwright, relieved him? few will doubt, that if he had ministered to his necessities, he would have endeavoured to enhance the feeling in his

own favour, by stating the circumstance. He had borrowed from him the crank and comb, and inserted it amongst the series of machines contained in his second specification, and might, therefore, fairly consider himself under obligation to him. But it appears Highs was not the only person whose invention he borrowed, and afterwards treated with "the most perfect indifference." These are Mr. Mc. Culloch's words, used with reference to Highs, and from Mr. Arkwright's "indifference" towards whom Mr. Mc. Culloch grounds an argument that Mr. Arkwright could not have borrowed from him the roller-spinning. Either Mr. Mc. Culloch must disprove the account given on oath by Mrs. Hargrave, George Hargrave, and the smith, that the crank and comb, inserted in Mr. Arkwright's patent, was the invention of James Hargrave, or prove that Mr. Arkwright relieved Hargrave or his family, or the argument Mr. Mc. Culloch founds upon the improbability of Arkwright's borrowing his invaluable treasure of the roller-spinning from Highs, in consequence of his ever afterwards having "treated him with the most perfect indifference," must be abandoned, inasmuch, as he is here shown in a case very similar, to have served Hargrave, a person well known to him, and residing in the same town, and to whom he was under obligation,

in precisely the same manner. Mr. Arkwright draws an affecting picture of the "ungenerous treatment of poor Hargrave," but this was not done to serve Hargrave;—the calamities of the latter are displayed before the public, to create a feeling in favour of *himself*. He represents himself as a fellow-sufferer with Hargrave, and, from the misfortunes the latter had met with, endeavours to derive advantage to himself. He was not the cause of those misfortunes, certainly, but still he took them into his own service, after they had occurred.

When mentioning the improvements of the carding-engine, Mr. Mc. Culloch ought not to have omitted the invention of the crank and comb, because the fame of Hargrave, mainly depends upon it. Mr. Mc. Culloch, with characteristic infelicity, assigns to Hargrave the invention of a machine which he did not invent, and deprives him, as far as he can, by his silence, of the invention of another, which entitles him to honourable and lasting mention, among the forwarders and promoters of the cotton manufacture. Mr. Mc. Culloch deserts "poor Hargrave," when his claims militate against the reputation of Sir Richard Arkwright.

But, had not Mr. Arkwright another very

strong motive of interest, while speaking of the misfortunes of Hargrave, and of his patent having been wrested from him, to attribute to him the invention of the spinning-jenny rather than to Higs?

I believe no one will doubt that Sir Richard knew very well that the jenny was *invented* by Thomas Higs. I shall presently convince the reader that, in the year 1765, a considerable time before Mr. Arkwright left the neighbourhood of Leigh, a jenny, with twenty spindles, made by Higs, was at work in the house of John Wilkinson, in that town. From Higs' evidence on the trial in the King's Bench, we find that he knew Arkwright personally, as early as 1764 or 1765, and as Arkwright's business brought him frequently to Leigh, in those years, we cannot suppose that he was ignorant of Higs' *first* invention, the jenny, particularly as he was so active in getting the earliest intelligence of his second—that of the roller-spinning. But was it likely, that Mr. Arkwright would, in the year 1782, tell the world that the spinning-jenny was invented by Higs? This would have been to clothe with celebrity the man who could wrest from him the roller-spinning, his great treasure, and which he was, at that very time, expecting to have restored to him by parlia-

ment. Is it to be supposed, that a sharp-sighted man of the world, like Mr. Arkwright, would have had the fatuity to commit so imprudent an action? What! to have laboured and studied, to have combined, speculated, lost, and gained, and finally to have got into the high road to riches and honour, and then to invest a contemporary and rival with a means of ousting him of his monopoly and impairing his fame!—Forbid it pride,—ambition,—forbid it avarice.—The most powerful passions that can sway the human character would have been opposed to such a proceeding. The motives of interest, and the excitements under which he must have laboured, are all destructive of Sir Richard's trustworthiness as a witness *disposed to tell the whole truth*, where Highs was concerned.

Let us now examine how truly, regularly, and correctly, he details facts.—They are so stated in the “Case,” that it appears as if Hargrave had settled at Nottingham, and had obtained a patent before Sir Richard went thither, and obtained *his* patent. He says Hargrave was driven out of Lancashire by riots, and went to Nottingham, and there took out a patent, &c. He then says, that having so *recently witnessed* the ungenerous treatment of poor Hargrave, by the people

of that county, *he* retired to Nottingham, and obtained a patent in 1769. Now, from the search I have caused to be made at the patent office, I find that Mr. Arkwright took out his patent, 3rd July, 1769, while Hargrave did not take out *his*, until the 12th of June, 1770, almost twelve months afterwards; yet no person, on perusing the "Case," could possibly suppose, but that the latter had preceded the former. When there is this unfairness of narration, and distortion of fact, to be found in the "Case," who can place the smallest reliance upon it?

But, *does* Sir Richard say that Hargrave *invented* the jenny? No. He says that Hargrave "constructed an engine that would at "once spin twenty or thirty threads." It served Mr. Arkwright's purpose, when speaking of the jenny, to mention Hargrave rather than Highs. Hargrave was then dead, and could not interfere with Mr. Arkwright's projects, but Highs—perhaps if Highs had been missing too, Mr. Arkwright would not have been inconsolable,—the inventor of the jenny, as well as the rollers, was alive, and had been in court the preceding summer, to claim the latter, and, when speaking of the spinning jenny, Mr. Arkwright preferred mentioning Hargrave who *had constructed* one in 1767,

rather than Highs, who, in 1764, had *invented* it. If we could conceive a person actuated by the motive here supposed, and yet, at the same time, wishful not flagrantly to transgress the bounds of literal truth, he not being, in this instance, pointedly and directly interested we cannot imagine a more ingeniously elaborated term, than this of Mr. Arkwright's. He used the word "*constructed*," not "*invented*," yet the reader, as the text of his "Case" stands, would rise from its perusal, with no other idea than that Hargrave was the *inventor*. But, if Mr. Arkwright had been attacked for attributing the invention to the wrong person, he could, with the greatest plausibility have replied. 'I have done no such thing; examine my "Case;" I never said Hargrave "*invented*" the jenny, the word I use is *constructed*. I do not pretend to investigate the question of the first invention of the machine, but I know that in 1767, Hargrave constructed one,—that is what I have stated, and I say no more. Whether it was the first that ever was invented, or not, I have neither said, nor pretended to determine.' And, to this explanation of Mr. Arkwright's, I could have no possible objection, it is perfectly consistent with my argument, that as Highs had *invented* a jenny, in 1764, Hargrave should have *con-*

structed one, and that of an improved description, in 1767.

With respect to Hargrave's patent, I have, in a former part of this work, stated why it was necessarily invalid. If he had confined himself to describing the horizontal pull of the clove, which he had added to the machine, in question, he might, in all probability, with perfect justice and lawfulness, have maintained his patent. But, by specifying the whole machine, as of his own invention, by grasping at too much, by claiming, along with the property that belonged to himself, the property which belonged to others, he lost the whole. His unfortunate step in so doing, was the real cause of his losing the benefit of his ingenuity; and not the weight of the purse, nor the terror of any association, that might have been formed against him. It is probable, that when others began to use his jenny, he might have threatened them with actions, or proceeded against them, but they, knowing that jennies had existed long previously to his patent, therefore, treated his proceedings in that respect, with disregard. The fact is, however, he did not go on with them, and, in this circumstance, we have the strongest proof that he had no case,—that he found his error, and therefore discontinued them. In this very cir-

cumstance, is to be found, a strong corroboration of my account.

Having now disposed of my antagonist's authorities for attributing the jenny to Hargrave, I shall lay before the reader, the evidence and the grounds upon which I assert it was invented by Highs.

By the deposition of Thomas Leather,* from his *personal knowledge*, not trusting to or

* The Deposition of Thomas Leather.

Thomas Leather, of Leigh, Weaver, aged sixty-nine, says, that, when about eight years of age, he came with his father, Richard Leather, and his mother, Betty Leather, to live in a house situated on the west side of a street in Leigh, called The Walk; that the said street is in the township of Pennington, and parish and town of Leigh; that his father was a wheelwright; that when they had lived one year at the said house, they removed to another house, a public-house, situated on the east side of The Walk; that the last mentioned house is now occupied by Molly Aspinwall; that he lived with his father three years in this last-mentioned house, in the first of which years his mother died; that, at the end of the three years, his father and he quitted the house, and never afterwards resided in it. That whilst he lived the three years with his father, in the house on the east side of The Walk, their next door neighbour on the south side, was James Smetham, Glass-maker, and their next but one on the south side, was Thomas Highs, reed-maker; that their next door neighbour on the north side, was John Kay, clockmaker. That, whilst he lived the three years with his father, in the house on the east side of the walk, there was much talk amongst the neighbours about a spinning-machine that Highs and Kay were making,

relying upon the reports of others, it appears, that when he was a boy, about eight or nine years of age, he and his father and mother went to live at a public-house, known as the sign of the seven stars, on the easterly side of a

in Highs' garret; that Highs and Kay worked at this machine during over hours, sometimes working until late at night; that after they had worked at it some months, they, one Sunday evening, threw or carried it into the back yard, and broke it. That, on the Monday morning, he, this deponent, took a wheel or pulley for a trundle-bowl from the broken machine as it lay in the yard; that when the neighbours heard that Highs and Kay had broken the machine, they laughed at them; that Kay said he would have no more to do with spinning-machines; that Highs, however, was not satisfied, but took the broken machine into his garret, and soon after completed a spinning-jenny. That the jenny made by Highs had six spindles; that the spindles stood at the front of the jenny, and were turned by strings from a drum working on a perpendicular axle; that the cleve worked perpendicularly, rising when drawing out the weft, and falling when it was copped. That after Highs had invented this machine, he did not work much at reed-making, but was employed in making and scheming machines for spinning; that Highs' daughter, Jenny, set the reeds during her father's absence. That John Kay left Leigh, and went to live at Warrington, about the time this deponent and his father removed from the house on the east side of The Walk, and that Thomas Highs and his family went to live in a house in Bradshaw-gate, in Leigh, about the same time.

The Mark of Thomas ✕ Leather.

Signed by Thomas Leather, after having been taken down in writing, from his own statement, and read over to him by Abraham Heyes, this twenty-ninth day of August, one thousand, eight hundred and twenty-three.

In the presence of Abraham Heyes,

Samuel Whittle, Parish Clerk.

street called The Walk, in Leigh, in Lancashire. That they lived there three years, in the first of which his mother fell ill and died. I searched the parish register, and found the date of her interment to be October 4th, 1763.* It is the custom in that neighbourhood, and was so at the time spoken of, for tenants to enter upon houses on the twelfth of May. The usage is now very general, and was then almost universal. The precise period, therefore, at which they would go to the house in question, would be, there is little doubt, the 12th day of May, 1763. He states, that at that time, the houses adjoining, and near to the one in which they then went to reside, were occupied as follows :—Higs lived at the most southerly, one Smetham, a glass-maker, at the next, themselves the next, and John Kay, the clock-maker, at the most northerly. That there was a good deal of conversation amongst the neighbours, about a spinning-

* Certificate of the Burial of Mary Leather, mother of
Thomas Leather.

The following Certificate is copied from the Parish Register :—

“ Burials at Leigh Church, continued. October 4th, 1763,
“ Betty, wife of Richard Leather, of Pennington.”

Witness, Samuel Whittle, Parish Clerk.

Leigh, March 7th, 1822.

machine, which Highs and Kay were employed in making, in Highs' garret. That they worked at over hours, upon this machine, after finishing their regular day's work, and were frequently so employed until late at night. That after they had been at work upon it a considerable time, it was given up, thrown into the yard, and broken, and that he remembers very well getting from it a wheel, or pulley, which he used for a boy's hoop; an amusement common with boys at his age. That there was much joking and ridicule at the unsuccessful termination of the attempt, and that Kay seemed rather abashed at the failure, and said he had done with spinning. That Highs was not satisfied with the issue of the affair, but took the broken frame and wheels again into his garret, and shortly afterwards completed the machine. It had six spindles, which were placed in front of the instrument, and were turned by strings from a drum, revolving on a perpendicular axis. That the clove, (that part of the machine which grasped the rovings,) rose perpendicularly when the rovings were drawn out and twisted, and was drawn down by the hand of the spinner when they were copped or wound upon the spindles. This machine, more minutely described and depicted in an engraving in my History of the Cotton Manufacture, is

the spinning-jenny. He states that Highs had a daughter Jenny, and it is well known in the neighbourhood, the machine was so called after her. During the time Leather's family lived the three years at the house spoken of, which would be until May, 1766, he states, that Highs and Kay were living neighbours to them, and that about the time they removed from the house, Kay went to reside at Warrington. Leather informed me he could not tell in which of the three years the jenny was invented, but he knows it was early in them, and he believes the first, or very early in the second. He also states that after that time, Highs worked little at his regular business of a reed-maker, but was chiefly employed in making and planning spinning-machines.

In his deposition, Leather mentions the precise houses where Highs and Kay lived; this along with several other particulars, the reader may think immaterial, but I thought it desirable to obtain all the particulars from him, in order that if he had been chargeable with any inaccuracy, whether of importance to the point in question or not, he might the more easily have been confuted. His deposition, by means of my former work, has been extensively circulated in the neighbourhood in which he lived, and would have been long since

contradicted by persons who were cotemporary with the events, if any thing he stated had been wrong ; but of any such inaccuracy or contradiction, even in the more minute particulars, having the best means of information, I have not yet heard. Indeed, all the inquiries I have made since his deposition was taken, have strengthened and confirmed the truth of it.

As Mr. Mc. Culloch has called in question the trust-worthiness of my account, I have not remained satisfied with it alone, but have obtained another, which I insert at the foot. It is the deposition of Thomas Wilkinson,* an old man now aged about 75 years. He states that he lived with his father in a street called The Walk, in the town of Leigh, that when he was from twelve to fourteen years of

* The Deposition of Thomas Wilkinson.

Thomas Wilkinson, of Leigh, Weaver, says, that he is now about seventy-five years old ; that his father, John Wilkinson, himself, his brother, William Wilkinson, and his four sisters, lived in a house situate on the east side of a street called The Walk, in the town of Leigh ; that whilst he lived in this house with his father, and when he was from twelve to fourteen years of age, Thomas Highs, who then lived in the same street, made a spinning-wheel, with twenty spindles, for his father ; that he saw Thomas Highs set up this spinning-wheel in his father's house ; that the spindles were placed on the front of this spin-

age, (which was from 1764 to 1766,) Thomas Highs, who then lived in the same street, made a spinning-wheel, with twenty spindles, for his father, that he himself saw Highs set up this spinning-wheel in his father's house, that the spindles were placed in the front of the wheel, that the clove rose straight upwards from the spindles when drawing out the threads, and came perpendicularly downwards when the threads were copped or wound upon the spindles.

Such are their statements. They are men yet living, whose names and residence I have indicated, and who, if the nature of the case called for it, or justified it, would have no objection to confirm what they have deposed to by the sanction of an oath. They may be considered, from their advanced age, as on

ning-wheel; that the clove rose straight upwards from the spindles when drawing out the threads, and came straight downwards when the threads were put up or copped.

The Mark of Thomas X Wilkinson.

Signed by Thomas Wilkinson, after having been taken down in writing, from his own statement, and read over to him by Abraham Heyes, this first day of November, one thousand, eight hundred, and twenty-seven.

In the presence of Abraham Heyes.

Samuel Whittle, Parish Clerk.

the verge of the grave, and have surely a strong motive not to cover their declining years with shame, by deposing to fraud and falsehood. Besides, their so doing would be as useless as it would be wicked,—their statements are given to the world before their acquaintances and friends, and might, and assuredly would, be contradicted and disproved by them, if they admitted of it. The question is merely one of historical curiosity, no excited feelings are called into action by it, no motives of pecuniary interest can sway their testimony, another generation has filled up the void of their own, and lapse of time must have now subdued friendship or animosity, partiality or prejudice, of which the objects have so long passed away. The actors of the events of which they speak, have long disappeared from this stage of existence, and live only in memory and history.

Another person, a man of the name of Robert Blackstone, a very decent reputable man, and known as such by many still alive, informed me, about fifteen years ago, that when he was married and went to house, he procured, and had in his house, a spinning-jenny, made by Highs, which worked twenty-five spindles. This man has been dead thirteen years, but I introduce his account because

the circumstance of his marriage is very important in fixing the date when he first possessed the jenny. The register of his marriage in the parish church of Leigh, fixes it to have occurred, July 13th, 1766. This is the year before Hargrave, according to the earliest date which the accounts have assigned, constructed, at a distance of nineteen miles, the machine he claims.

I think I may also press into my service, upon this occasion, the evidence of Sarah Kay. I disdain to force an argument, and with so many as I possess on this point, I should be foolish to do so, but it is equally consistent with the candour I profess, as it is in accordance with my own wishes and feelings, to give my sincere opinion on every part of the subject, and it is on these accounts I again introduce the mention of her.

Her testimony requires explanation in one particular. After mature consideration, I have no doubt she confounded the spinning-jenny with the roller-spinning. The main circumstances she states are such as a woman would well remember. The time of her marriage—no woman can forget that. Her husband working for Highs in 1763, which would be soon after they settled at Leigh. When peo

ple have a living to obtain by working for it, and the prospect of a family before them, on removing to a new residence, the early persons who assist them, and first furnish them with employment, are likely to be well remembered. Mr. Arkwright's calling upon them soon after their return to Warrington, and their removal immediately afterwards, first to Preston and then to Nottingham, and the cause of her husband leaving Lancashire, and going to live at a distance of one hundred miles, are all circumstances peculiarly within the observation, and likely to create a strong impression upon the memory of a wife. Upon those subjects she scarcely could err, except wilfully. It would be fatuity to suppose she did not know the reason of her husband going with Mr. Arkwright to Nottingham. But, to distinguish between two machines, the spinning-jenny and the roller-spinning—the first of their kind ever seen—and for that to be done by a woman, who is not herself a mechanic or artizan, nor nice in examining pieces of mechanism,—likely to be much engaged in domestic duties—with no particular circumstance to draw her attention to the machines, or to induce her to discriminate between them, *at the time*, herself not engaged in spinning—not knowing that any important consequence would follow upon their construction, and

giving her evidence at the distance of two and twenty years from the event,—what is so probable, so reasonable to be supposed, as that she may have confounded the one with the other? On every point, except distinguishing between the two newly invented machines,—on every point on which we could reasonably expect accuracy in a woman's evidence, I hold that of Sarah Kay to be probable, trustworthy, and true. Leather says, Highs invented the spinning-jenny in 1763, 4, or 5; he told me he believed in the first or second of those years, and that he and Kay were engaged some months upon it. Sarah Kay says, on oath, that her husband and Highs made a model or rollers, by which cotton is spun, in 1763. For—model or rollers,—read—machine, and both accounts are consistent, and support each other. I consider it unreasonable, where an uneducated woman is giving evidence, and not minutely examined upon the subject, to expect perfect accuracy upon so nice a point as the difference between two newly invented machines, a matter totally out of her own province of observation. No such ambiguity arises upon the examinations of the mechanics themselves, and she states, in her cross-examination, that her husband and Highs began *it*, which we may fairly interpret—their connection about making spinning-machines,—in

1763. She says, in answer to a question from Mr. Erskine, the first model or machine she *ever saw*, which her husband made for Highs, was in 1763, and, coupling this account with that given by Leather, this machine must have been the spinning-jenny. Highs having been successful in this invention, was led to prosecute his discoveries farther, and, in the course of his pursuit, at an interval of two or three years, according to his evidence, in 1766, or 7, while he was, as Leather says, much engaged "in making and scheming machines for spinning," he found out the method of spinning by rollers. Thus, the direct testimony of Leather, Wilkinson, and Blackstone, and a fair construction of that of Sarah Kay, establish the fact that Highs invented the spinning jenny in 1763, or 4. The machine proceeds in a regular gradation of improvement by himself, the first having six spindles; at an interval of about a year, he has made an improvement in his machines,—the one made for Wilkinson has twenty spindles; after an interval of another year, his machines have advanced another step,—the one belonging to Blackstone has twenty-five spindles. Then, after another interval of a year, Hargrave, of Blackburn, who lives at a distance of nineteen miles, whither, in the course of four or five years, the knowledge of the machine had spread,

adds another improvement;—all is harmonious, consistent, reasonable, and probable.

Mr. Mc. Culloch says, page 12, “The improbability of the statements made on this subject by Mr. Guest, in his History of the Cotton Manufacture, appears still more obvious, from what has been already remarked, of his attributing to Highs the invention, not only of the spinning-frame, but also of the jenny, which had been universally ascribed to Hargraves. But no weight can be attached to such rash and ill-considered statements. It would be next to a miracle, had two methods of spinning, both very ingenious, but radically different in their first principles, been invented nearly at the same time, by the same individual.”

Well, Mr. Mc. Culloch, you say it is improbable Highs invented both; your argument then assumes that he invented one; this is in contradiction to all your former reasoning and statement, which deny him *both*. Your arguments jostle each other. Will you be pleased to inform us which you will allow him, the jenny, or the rollers? or admit that this piece of argumentation be expunged from your essay. But again, is there and has there been nobody in the world who has distinguished

himself by two ingenious inventions, in the same or various arts? One might suppose that the circumstance of a person's having proved himself ingenious enough to effect a clever contrivance, was rather a reason to believe he might invent another than the reverse. But what is the fact? Did not Smeaton invent a machine to measure a ship's way? did not the same individual improve the air pump, and restore Ramsgate harbour? and did he not build a permanent Eddystone? And was Smeaton a miracle? Brindley, by his inventions, improved the mechanism of corn and other mills. By inventions, "radically different in their first principles," he conveyed his navigable canals over vallies and rivers, through hills, and for miles under ground. Did not Roberts invent a self-acting mule, and the self-acting reed-making machine? "both very ingenious, but radically different." Nay, you yourself contend, that your own very Sir Richard Arkwright invented—one, the feeder;—two, the filleted cylinder;—three, the crank and comb;—four, the roving can;—five, the roller-spinning. I suppose you will believe your own protegee; you see he states himself to have been the author of *five* inventions, all "radically different in their first principles." Your argument asserts, that a man cannot invent two machines,—*a fortiori* then he cannot invent

five or six. There cannot be any thing less than none, or what in the name of fortune would become of Mr. Arkwright, if the claiming of two disproved the right to either, while he claims to have invented five or six? To what a miserable plight do your own arguments bring Sir Richard; his reputation is in a fair way of totally disappearing under the defence of yourself and Mr. Kennedy. Your arguments assail *him* more powerfully than Highs,—they are clumsy cannons which blow out the breech instead of the ball, and knock down the cannonier instead of the enemy.

But to make your arguments consistent, and allow you to persevere in your denial of *both* the inventions to Highs, we must read it thus. It is highly improbable Highs invented both—therefore he invented neither. Is this the logic of the university of Glasgow? If you were educated there I fear your *alma mater* will blush for her son. To such an exquisite specimen of ratiocination, I shall not insult the judgment of my readers by replying.

You say, "But he (Guest) has not produced a tittle of evidence to show that Hargrave knew any thing of Highs." Why, may not I retort this sentence upon you, and say, Mr. Mc. Culloch has not produced a

tittle of evidence to show that Highs knew any thing of Hargrave? If *I* say Highs invented it, and *you* say Hargrave did so, we are only where we were; the arguments exactly counterpoise each other, with this difference, however, that you fix the period at 1767, while I, by the important fact of the death of a man's parent, and the register of her burial, (see page 177) fix it to the years 1763, 4, or 5. Therefore, at all events, if Hargrave *did* invent a jenny in 1767, it is certain that Highs could not copy it in 1765. But there is ample time for the knowledge of a machine to have extended itself nineteen miles, the distance from Leigh to Blackburn within the space of two years. I think it very probable that Hargrave *did* construct a jenny in the year 1767, for, as I have elsewhere stated, in that year, or soon afterwards, great improvements were made on the original jenny. These improvements consisted in removing the spindles from the front to the back of the machine, and in giving the clove an horizontal instead of a perpendicular motion, and these improvements, "it is said," were made by Hargrave. It is in the nature of things that improvements should be progressive, and be made by various individuals. But, as Mr. Mc. Culloch says, "*c'est le premier pas qui coute.*" And mankind have generally assigned the palm to him who makes that step.

Alterations and improvements may be considered as merits of a secondary and inferior description, and the world has sanctioned the opinion, by converting into a proverb the phrase quoted by Mr. Mc. Culloch.

I wish now to ask my opponent a question. If Hargrave invented the jenny, how came it to obtain the appellation it has received? Why, out of the whole range of names in earth and nature, was that, above any other, selected for it? Had Hargrave a daughter named Jenny? We know he had a wife Elizabeth, and a son George, but who ever yet heard that he had a daughter Jenny? I have taken the trouble to ascertain that he had not. Three of his daughters are now living in Manchester, and I am informed by them, they had no Jane in the family. But Highs *had* a daughter Jenny. I can produce Mr. Mc. Culloch twenty witnesses of it any day of his life. She was well known, from being an excellent singer, and one of the choir at Leigh church; she was Highs' oldest child, and a great favourite, and it was after her that he so called his machine. This plain and homely name, has, through all the vicissitudes of a period of between sixty and seventy years, maintained its footing, and is still used to designate the improved machine. What does the reader

think of this fact? Small, and apparently obscure circumstances, but which are out of the reach of falsification or question, often bring to the mind more convincing and satisfactory certainty than any other. What can be more conclusive than this little, curious, unobtrusive, undeniable fact? He is stated to have invented the machine, and to have called it after his daughter Jenny, *he had* a daughter Jenny, and *that has been the* appellation of the machine for more than sixty years. Thus every argument from rational probability, from fair inference, every authentic and primary testimony, all direct and positive evidence, concur in ascribing the invention to Highs, while the single argument to the contrary, is the circumstance, that, *five or six years after the period I allege he invented it, during which the machine had got into considerable use, a man, living only nineteen miles from his residence, makes an improvement in it, removes to a place one hundred miles distant, and takes out a patent for the whole machine. Subsequently, an association of persons, knowing he had no right to claim it, make use of it, and set his patent at defiance, to which he himself, conscious of the real state of the case, quietly submits.*

But what is the usual course of events in

these cases? Is it the property of invention and discovery to advance or to retrograde? Do mankind revert to the clumsy and ill-contrived engine, when the improved and complete one is within their reach? Does the ruder machine succeed to the more perfect, or the contrary? Now the spinning-jenny, invented by Higs, and given in a plate, with a minute description, in my History of the Cotton Manufacture, is evidently the nascent germ of the present improved machine. I make bold to say, that there is no plate or description of any machine of this nature, which bears upon the face of it so clearly and incontestably the stamp of its own infancy. It is admitted, on all hands, that the pull by which the threads are drawn out was, in the jenny of Hargrave, made in an horizontal direction;—that same pull and drawing out as shewn in the jenny of Higs, was a perpendicular movement. No one who sees the two can doubt which is the better; no one who knows the former, would adopt the latter; and, when Hargrave gave to the clove the horizontal, in place of the perpendicular motion, he added a considerable improvement to the original machine. To suppose that Hargrave, knowing of the original jenny of Higs, should change its perpendicular draw to an horizontal one, is to account him a clever and ingenious

man, but to imagine that Highs, knowing of Hargrave's horizontal movement, would adopt his own ruder and less efficient one, is to suppose him a consummate fool.

One other argument, and I dismiss this part of the subject. The present improved spinning-jenny is, by no means, the same machine as that invented by Highs, and it also differs very materially from the one constructed by Hargrave. The two principal features in the spinning-jenny, are the motion of the clove, which draws out and elongates the threads, and the motion of the wheel or drum, which gives them the twist. In Highs' jenny, the motion of the clove was perpendicular, and the axis of the wheel, or drum, which turned the spindles, was also perpendicular. (See my History of the Cotton Manufacture, and the plate given.) In Hargrave's jenny, the clove moved horizontally, but the wheel, or drum, which turned the spindles, revolved on a perpendicular axis,* as in Highs' machine. In the present improved machine, the motion of the clove is horizontal, and the axis of the cylinder, or drum, which turns the spindles, is also horizontal. (See my History, page 14, explanations of the plates, page 2nd, and the

* Not exactly perpendicular, but nearly so.

plate of the present improved jenny.) Now, can any thing in argument come so near demonstration as this convincing proof, that Hargrave's was the *intermediate machine* the second material step in the progress of its improvement. In Highs' jenny, the axis of the drum and the motion of the clove are both perpendicular. Hargrave renders this rude machine more effective by changing the motion of the clove from a perpendicular to an horizontal, but the perpendicular drum remains. To this improvement of Hargrave's, succeeds another, and the powers of the jenny are again materially increased, by altering the axis of the drum from a perpendicular to an horizontal. This was done, probably, about 1774, by whom I do not know, and it completed the jenny of the present day, in which the motion of the clove and the axis of the drum, are both horizontal. Highs' jenny was invented in 1763 or 1764; Hargrave's patent is dated 1770, and the modern jenny was gradually superseding that of Hargrave in 1777. Thus, Hargrave's jenny being more complete than that of Highs, and less so than the modern jenny,—being superior to the former, and inferior to the latter,—being constructed after Highs', and before the modern or improved one, was, as plain as the sun at noon-day, the middle step, the connecting link, between

the two. The regular progress of advancement the machines exhibit, is as evident as if it took place under the immediate eye of the spectator. Here then again I take my stand. I say, they speak for themselves. Their "dumb mouths" argue as powerfully for me, as the depositions I adduce or the circumstances to which I appeal. I ask no more, than, that he who is the most sceptical, with regard to my proposition, should examine the diagram and description of Higs' machine, in my former work, inspect the drawing which accompanies Hargrave's specification, and view the spinning-jenny of the present day.

This or that of my inferences may be erroneous, and this or that of my arguments inconclusive, but the radii of arguments and of proofs all concentrate and converge into one focus. If Mr. Mc. Culloch should get rid of one, the others would have to be encountered. If he could invalidate and disprove the direct testimony of the witnesses I adduce, which is impossible, the various arguments from circumstances would still remain; or if he got rid of one of the series of circumstantial proofs, he would still have to combat the others, and the direct testimony. That the latter should come as it does, from persons

both of a past and present generation,—that the evidence arising from circumstances isolated, unconnected, and of various character and description as they are, should accumulate upon themselves, and should again accumulate upon the direct testimony,—that there should be no intervening and conflicting difficulty,—and yet that the conclusion to which they separately and conjointly conduct us should be false and unfounded, would be a phenomenon in the history of evidence and investigation. If Mr. Mc. Culloch, can, with Herculean gripe, strangle the serpents separately and successively, as they rise on each side of him, if he can prove all the direct testimony false, and overturn all the circumstantial proofs by shewing that I have placed them on their apex instead of their base, no one will be more ready to return him thanks than myself. To see this done laboriously and minutely, to the satisfaction and conviction of a candid and unprejudiced mind, would at once satisfy me that from his dissertations and effusions mankind may learn wisdom.

I have, in the course of my inquiries, as before observed, obtained several particulars relative to the life of the remarkable man, who is the principal subject of discussion in these pages, and shall here mention them.

From the time of his marriage which took place in 1747, and down to about 1771, he resided in Leigh. He was by trade a reed-maker,—a first-rate workman, and was noted for making the best reeds in the country, as well as travats, lances, and wires for cotton-velvet weavers. Before he began the manufacture of these instruments, the velvet weavers in his neighbourhood, procured them from Spitalfields; but his were found far superior to those obtained from London, and were universally preferred.

The years 1763 or 4, are remarkable, in his life, as being those in which he invented the first spinning-jenny. He was then about forty-three or four years of age, and his attempts at the construction of a spinning-engine having been, in this instance, crowned with success, he was led to follow up the pursuit with increased zeal and perseverance. It was partly in consequence of his various labours and experiments in this pursuit, and partly from his being employed, as a matter of business, to make spinning-jennies, that he now discontinued, in a great degree, his regular trade of reed-making. In 1766 or 7, he discovered the method of spinning by rollers, and employed Kay, the clockmaker, to assist him in the construction of the mechanism, from

whom Mr. Arkwright afterwards obtained the secret. He seems to have appreciated properly the difference, in point both of ingenuity and consequences, between the two machines, for whilst he made no secret at all of the spinning-jenny, but made as many as he could procure orders for, he carefully kept the roller-frame concealed in a private apartment, to which as before observed, none but his most intimate friends were allowed access. He properly estimated its value, and was desirous of keeping it to himself until he could find some person who should have a little capital at command, and who would be willing to assist him, or engage with him in the spinning business. He seems to have considered the latter invention what it has since turned out to be,—a profound discovery, and likely to be productive of great advantages. It is true the advantages he contemplated might be confined to the adventure in which he proposed to engage; he could not foresee that multitudes of factories of enormous size and dimensions would within fifty years spring up in the towns and vicinities of Manchester, Leeds, Stockport, Bolton, Huddersfield, Preston, Wigan, Warrington, and Blackburn, that would be in a great measure filled with his machinery, or varieties and modifications of it; for, whether we look at the roving or slab-

bing-frame, the doubling-frame or the throstle, the roller-spinning is the principal or exclusive feature in all, and to this the mule unites his former invention—the jenny. But because he could not foresee the remote consequences of his inventions, that circumstance does not derogate from the merit of them. The inventor of printing, with movable types, could not foresee that Europe, Asia, and America, would one day be inundated with books and newspapers, but he is not on that account less the originator of his art. However inconsiderable and insignificant in their early state,—Higgs' inventions were destined to become of immense importance. The final magnitude of objects is not to be measured by their early germ;—the contemptible and despised acorn becomes, in process of time, the lofty, the spreading, the enduring oak. The invention of his machines, and the varieties, modifications, and combinations which have been already formed from them, are pregnant with ultimate consequences of greater moment and more enlarged benefit to mankind, than the greatest victory, or most extensive conquest.* They will promote the improvement and civilization

* A single factory in Manchester, and that not of first rate magnitude, receives the raw cotton, and turns out a web of cloth, varying in width from three-quarters of a yard to a yard and a quarter, of forty miles in length every week.

of nations, probably through all time, and the effects they have already produced, though displaying themselves gradually, and almost imperceptibly to the superficial observer, are not the less conspicuous to the observing and reflecting mind. Our manufactures are wafted, by means of our shipping, to every quarter of the globe, and we import in exchange for them, the wealth and productions of numerous and remote countries. The great accession of wealth, and accumulation of capital, which has accrued to England, within the last century, arises from her machinery and the steam-engine. Combined together, they become whole regiments of labourers, who require comparatively little pay, and make comparatively small deductions from the wealth and the materials of wealth which they produce. Subterraneous treasures of fuel, are, no doubt, greatly assistant;—but other countries possess coal as well as we. Without machinery and the steam-engine, coal would, in this respect, be merely the gem in the caves of the ocean. It has assisted the machinery when created, but little more. It has been instrumental in confirming and concentrating the cotton manufacture and machinery in and near the coal district of Lancashire, but had nothing to do with originally placing them there. What proportion the spinning-machinery may bear

to the whole of the machinery of Great Britain and Ireland, I am unable to state, but it probably exceeds that employed in all the other manufactures put together; and, if we compare the statistics and the revenue of this country in 1760, and at the present time, we may form some idea of its importance. I wish not to be misunderstood; I desire to attribute no undue merit to the man who was its principal inventor. Others have also high claims upon the gratitude of their country. Highs invented, Arkwright arranged, Crompton combined; but in vain would Arkwright have arranged and Crompton combined, unless Highs had supplied them with their principal materials. His was the ore from the mine, theirs was the moulding and fashioning.

His labours and improvements in machinery were not confined to the spinning-jenny and the roller-frame. He constructed, in 1772, a cylindrical carding-engine, with a filleted cylinder, for the purpose of taking the cotton, when carded, from the carding cylinder, in a continuous fleece, and forming a perpetual roving. This was a great improvement upon the method then in use, and though others hit upon methods of performing the same operation soon afterwards, he appears to stand first in point of time.

About 1767 or 8, he removed to a house in Bradshaw Gate, Leigh. Here was the room where he kept the roller-frame secluded. Whilst living at this place, he constructed a jenny in which the spindles were placed in a circle, with the drum or wheel to turn them in the centre; the clove also was circular, and rose and fell perpendicularly, from and to the spindles. This jenny was set up in an unoccupied house, next door to the Anchor public house, Market-street, Leigh.

About 1769, he took some hanks of twist spun upon his roller-spinning machine, to the Board of Trade, as it was then called, in Manchester, as a sample for the inspection of the manufacturers, and with a view of getting a friend "to assist him in his new manufacture." In this, unfortunately, he was unsuccessful, though he did afterwards partially succeed in a similar attempt, until a melancholy accident again blighted his prospects.

In 1770, or early in 1771, he removed from Leigh to Camp-Street, Manchester, where he constructed what may be termed a double-jenny. This had twenty-eight spindles on each side, which were turned by a drum or roller, placed in the centre. The great peculiarity of this machine was, that, whilst in his

first spinning-jenny, in the jenny of Hargrave, in that of the present day, and even in the mule, the revolving wheel, which turns the spindles, is obliged to be turned backwards, while the elongated and twisted thread is wound upon the bobbin, the double-jenny I speak of did not require this reverted motion, but alternately drew up one clove, at the same time dropping the other, and copping the threads it had drawn out, and then again, with the latter, drew out a fresh thread, and copped what the former had, in the mean time, been drawing out and spinning, by a rotation of the drum or twisting-wheel, perpetually in one and the same direction. This machine was publicly worked in Manchester Exchange, in 1772, by his son, Thomas Highs, then about ten years of age, and the manufacturers, on that occasion, subscribed two hundred guineas, and presented them to Highs as a reward for his ingenuity.

In the same year he removed to Wilderspool farm, in Barton-upon-Irwell, and it was here he prosecuted his improvements of the carding-engine, and made a perpetual roving, as before mentioned.

In 1773 he removed to Bolton-le-Moors, where he resided until 1776. Here he was in-

timate, and very often in company with Mr. Samuel Crompton, who about the latter period combined the roller-spinning frame with the spinning jenny, and by that means produced that wonderful and effective machine the Mule.

In 1776 he returned to Manchester, and resided at No. 6, Deansgate, opposite the Wool Pack. At this time Mr. Smith, a Manchester merchant, whose warehouse was in Hunter's-lane, agreed to form a partnership with him and erect a spinning factory, in which to carry on their business. At that time water was the chief or only moving power applied to work the roller spinning. The steam engine had not then been used for that purpose, or if at all, ineffectively, and to the smallest possible extent. Mr. Smith accordingly proceeded into Yorkshire, in search of a waterfall suitable for their purpose. He was successful in the object of his journey, and arrangements were proceeding to carry the object of their design into execution, when this gentleman was unfortunately drowned at Blackpool, whilst bathing. After this fresh disappointment, in 1777 Highs went to Nottingham to construct spinning-machines for Messrs. Stanfield & Hallam, or Bancroft & Hallam.

In 1778 and 1779, he made machines

at Kidderminster, for various manufacturers, among others, Messrs. Pardoe, Lea & Co.

On the 31st of October, 1780, he left Manchester, and on the following day sailed to Ireland. The object of his journey was to direct and superintend the making of cotton-spinning machinery for Baron Hamilton, who was then building a factory upon his estate at Balbriggan, in the county of Dublin, where there was a powerful waterfall. From this place he was summoned as a witness in the actions commenced by Mr. Arkwright, against the cotton-spinners; the urgency of the summons, and the hurry of his journey to England have been before described. He did not again return to Ireland, though subsequently a partnership was proposed to him by Jno. Martin, Esq. of Knockinggan, the proprietor of a waterfall on Knockinggan river or Knockinggan water. As Mr. Mc. Culloch has asserted so many suppositions, I hope I may be allowed to hazard a single one. I think it rather unfortunate both for himself and that particular part of Ireland, where he had settled, that he did not return to it. If he had been allowed, under moderate patronage, (in which situation he had previously been fixed under Baron Hamilton,) to have prosecuted his inventions there, he might, in all probability, at

the same time that he was indulging his favourite pursuit, and living in easy circumstances, have improved the machinery, and very considerably promoted the manufactures of Ireland.

Subsequently to the year 1781, he resided at Manchester, and made machines, until about the year 1790, when he was afflicted with a stroke of the palsy. By this calamity, his intellects were impaired, and he would have been almost destitute, but for the kindness and benevolence of the late William Drinkwater, Esq. of Manchester. This gentleman was a magistrate; he was also a cotton-spinner, and when Highs was thus afflicted, he generously allowed him a guinea per month, and five guineas every 24th of June, and every 24th of December, during his life. When he died, Mr. Drinkwater, or his son, also provided money for his decent interment. Highs had brought up his family, by his own exertions, in a reputable and respectable manner, and, up to the time he met with the stroke of the palsy, though he never was affluent, he had not known want; and it is consoling to reflect, that this ingenious and meritorious man, whose inventions have so greatly benefited his country and mankind, was, through the generosity of Mr. Drinkwater, and the

assistance of his own children, preserved from absolute want and privation. He died on the 13th of December, 1803, aged eighty-four years, and was buried in a vault belonging to the minister, in the New Jerusalem Chapel, Manchester.

With respect to the character and disposition of the man, as is the case with most men engaged in studious pursuits, little can be said, except that he was of retired habits, temperate, modest, and unassuming. Of his devotion to his art, and the intensity of his thinking, an idea may be formed from the circumstance of his frequently standing in meditation with his back to the wall, and his eyes half closed, for an hour or two together, without change of position. At such times, he would exhibit great impatience and vexation if, by noises or otherwise, he happened to be disturbed.

Nothing is more singular, or shows, in a stronger point of view, the great evanescence of individuals, and the knowledge of circumstances affecting them, in Manchester, arising principally from its great increase in new settlers and population, and the great fluctuation of its inhabitants, than that a man, of such celebrity, and so well known to the

last generation of Manchester merchants, as Highs, should be now almost forgotten. The general impression of Arkwright's not being the inventor of his patent machinery, has, however, survived to the present generation; and, whatever the inhabitants,—whatever the manufacturing districts of Belfast or Glasgow, or the reading public of Edinburgh or London, who are led by the Edinburgh Review, may think upon the subject, two-thirds of the respectable Manchester manufacturers of the present day, would have known very well that Arkwright was not the inventor of the roller-spinning, though they might not have thought it worth while to answer Mr. Mc. Culloch's article, which I, being committed upon the subject, found myself called upon to do. Whether my exertions will have tended to confirm their opinion, or not, is not for me to say; but I have taken some pains to ascertain the truth, and, in the course of my researches, have found no circumstance or difficulty, which should lead me to distrust or doubt any proposition I have here maintained, or cause me to suppose that further inquiry would have done so. With respect to every subject but one, I am not aware that further inquiries *can* be made that are at all likely to elicit any thing new. But as Mr. Mc. Culloch asserts, with such positive and lofty confidence, that the first

trial, relative to the originality of the roller-spinning, took place in 1772, I was desirous to have searched the courts from that period down to 1780, in order that he might not afterwards say, Oh! I was only mistaken a year or two, 'the trial I spoke of took place in such or such a year.

I intended to have prepared myself for this possible cavil, but was stopped in the very outset by an insuperable difficulty. I neither know the court, nor the county in which it is supposed to have been tried; and I am told by my attorney that without this information, a search amongst the records of all the courts, to ascertain whether there was any action whatsoever brought which had reference to the subject, from 1770 to 1780, would be very expensive and almost endless. I conceive the result of my search completely establishes that there was no such trial as he mentions in the year 1772. But it is not absolutely out of the range of possibility, though, to the highest degree, improbable, that such a trial may have occurred between that time and 1781. As Mr. Mc. Culloch has given us so many minute particulars, respecting this alleged trial; we may fairly presume, that he knows in what Court it was brought, what County it was tried in, and the names

of the parties, and, if not the exact year, the exact two or three years of its occurrence, or, at least, that he can obtain that information from his authority. In either case, he can make the inquiries, and the search himself. I therefore recommend them for his consideration. He will probably reply to this book in his own name, or review it in the *Edinburgh Review*, and then he can inform us what success he has had. If he can prove that an action was raised to set aside Sir Richard Arkwright's patent, *on the ground that he was not the original inventor*; that on the trial a verdict was given in Sir Richard's favour, and that this occurred *in any year after 1772, and before the year 1781*, he will establish an important point in his own favour. If he makes the search, I hope he will satisfy himself, but I think his success very doubtful, for the following reasons. First, no such trial is mentioned in any of the early accounts of the Cotton-manufacture, nor indeed, in any book I have been able to meet with on that subject printed before the year 1800. Secondly, it is not mentioned in Mr. Arkwright's "Case," printed in 1782, though this "Case" mentions Hargrave's litigations, and Mr. Arkwright's trial in July, 1781. Thirdly, it is not mentioned, or even alluded to by Mr. Bearcroft, counsel for the crown, nor by Mr. Serjeant Adair,

counsel for Mr. Arkwright, nor by any of the counsel or witnesses on the trial in June, 1785, though on this trial; they frequently mention the two preceding trials, namely, those in July, 1781, and February, 1785. Fourthly, it is not mentioned or alluded to by Mr. Serjeant Adair, when moving for a new trial on the 10th of November, 1785, though he mentions the three preceding trials, in July, 1781; in February, 1785; and in June, 1785. Who can doubt, that when arguing the question of originality of invention, (see page 117 of this work,) the Serjeant would have stated, that Sir Richard had had a verdict in his favour on that question, previously to 1781, if he had known that such a verdict had been given? If Sir Richard's attorney had been aware of such a circumstance, would he not have informed the Serjeant? and if Sir Richard had known that such a verdict had been given, would he not have informed his attorney? The inference is obvious. Fifthly, in the "Case," Sir Richard himself, after stating that he obtained a patent in the year 1769, says, "It was not till upwards of five years had elapsed after obtaining his first patent, and more than £12,000 had been expended in machinery and building, that *any* profit accrued to himself and partners." Thus it appears, that Sir Richard himself was not

fully convinced of the value of his scheme, before the years 1774 or 1775; and I have already shewn, (see page 111,) that as late as 1778 or 1779, it was yet doubted whether his spinning concern would be ultimately and decidedly advantageous or not. Is it likely then, that a number of persons would subscribe money to set aside a patent, at a time when it was doubted whether the patent was worth having or not; and when even the patentee himself was not convinced of its value? The supposition is absurd. Sixthly, it appears that Mr. Mc. Culloch *himself* thinks that the question of originality of invention was tried *for the first time* in June, 1785, for he says, when speaking of that trial, (Edinburgh Review, page 11,)—"Having no idea that any attempt was to be made to overturn the patent, *on this new ground*, (the originality of invention) Sir Richard's counsel were not prepared with evidence to repel this statement." Now, if the question of originality of invention *was new in 1785*, and Mr. Mc. Culloch affirms it was, it could not have been tried in 1772, and yet he informs us, (Edinburgh Review, page 10,) "In 1772 they (the Lancashire Manufacturers) entered into a combination, and raised an action to have the patent set aside, on the ground that Sir

“ Richard Arkwright *was not the original inventor.*” Thus he says the question was mooted in 1772, and yet that it was a new question in 1785. Not satisfied, as I have before observed, with panegyρίζing Mr. Strutt, puffing Mr. Kennedy, and then deserting their guidance, not satisfied with placing a blind and implicit confidence in Mr. Serjeant Adair’s simple and unsupported assertion on one point, and flatly contradicting him on another, he here (for I will do him the justice to say he generally makes a climax) contradicts himself. The others cannot complain, for he appears to show no favour or affection. He does to others as he does to himself. His argumentation assimilates itself very much to the golden rule of morality.

For the above reasons, I feel confident there was no trial whatever upon the subject of Sir Richard Arkwright’s patent, before July, 1781; however, as they are negative proofs only, and I have only searched in 1772, it is not *impossible* that such a trial may have occurred subsequently to 1772, and before 1781, and Mr. Mc. Culloch may have erred only as to the precise year in which it happened. I should think that a man, so famed as Mr. Mc. Culloch, seated on high in the literary tribunal, judging, condemning, and,

with his own hand, inflicting punishment upon me, for giving what he calls "rash and ill-considered statements," would, for consistency's sake, avoid, at least in his judicial capacity, making rash and ill-considered statements himself. He states minute particulars, that the action was commenced by certain individuals, against Sir Richard, and not by him against others; he states *the ground of the action, that the evidence brought forward at the trial was insufficient, and that a verdict was given, &c. &c.* Now he must have acquired a knowledge of these particulars from some source or other, or else he must *have invented them*. We can hardly suppose that; if he has, he has at once acted as accuser, false witness, judge, and executioner, an anomaly too horrible to have occurred in the person of an Edinburgh Reviewer. I hope for his own sake, that he has some ground for them; I am willing to believe he has, and I hope he will be able to inform the world what it is. Do "the access to know" and the circumstances Sir Richard's friends can speak to, relate to the trial which he states happened in 1772; if so, as the verdict is said to have been in Sir Richard's favour, perhaps, they will not object to his informing the world what they are. On this subject, through his friend Mr. Kennedy, he may perhaps obtain some information, and I hope

he will attend to my suggestion. Further, if he thinks I can render him any assistance I shall be happy to do so. I can safely say that on two subjects, the invention of the roller-spinning, and that of the spinning-jenny, I have not spared pains to get at the truth; and, if Mr. Mc. Culloch feels himself at a loss on either of those subjects, and will write to me, I will answer any queries he may propose, to the best of my ability, and at the same time, give him my authorities; this may possibly save him some trouble. With respect to the spinning-jenny, I conceive the facts and arguments here adduced will satisfy the reader, that Highs led the way in the career of the spinning inventions, and invented and manufactured spinning-jennies several years before Hargrave. On what authority Mr. Bannatyne states that Hargrave's first machine, made, as he says, in 1767, turned only eight spindles, I am ignorant. He cites no author, and refers to no proof. Anonymous authority has, in this question, no weight whatsoever, and Mr. Bannatyne, as I have before observed, could personally know nothing of the matter. But, even if he had the fact on good authority, Sir Richard Arkwright, whom Mr. Mc Culloch would, I suppose, allow to be also good authority, contradicts him in this particular; for he says the machine which Hargrave constructed in

1767 turned twenty or thirty spindles. The possible cavil, that Hargrave might have constructed both in that year is beneath notice.— In that case either Arkwright would have told us he had previously constructed one that turned eight, or Bannatyne would have stated that he afterwards, in the same year, constructed one which turned upwards of twenty. The fair effect and result of their accounts is, that they contradict each other with respect to the number of spindles contained in the first spinning-jenny of Hargrave. If Mr. Bannatyne's account is to be assumed as the truth, it appears natural, that in the first machine by which Hargrave endeavoured to effect an improvement in the mode of working the machine, he should have diminished the number of spindles from twenty to eight, for the purpose of trying the effect of his projected improvement on a small scale, and, if Arkwright's account is to be assumed, it shews that the machine worked as many or more spindles than those of Higs were in a course of doing at that time. But, at variance as they are in this particular, we cannot confide in either, and must therefore lay them both out of the question. In doing so, and relying upon those authorities and circumstances which are out of the compass of falsification,—the dates of events,—the proximity of the residences of the

individuals,—the evidence from the appellation of the machine,—the gradual progress of its improvement as years roll on, and, above all, the evidence from the succession and sequence of alteration, which the machine itself exhibits, we can arrive at no other conclusion, than that Hargrave's machine is as evidently and palpably an improvement of, and an advanced step upon that of Higs, as the modern spinning-jenny is upon that of Hargrave.

Having disposed of the principal objects for which this work was undertaken, I shall now examine the composition of Mr. Mc. Culloch's article.

Sterne's questions, "Tell me, ye learned, "shall we for ever be adding so much to the "*bulk*—so little to the *stock*? Shall we for "ever make new books, as apothecaries make "new mixtures, by pouring only out of one "vessel into another? Are we for ever to be "twisting, and untwisting the same rope?" may be put to Mr. Mc. Culloch with great propriety. His article, from the beginning of the 3rd paragraph, in page 2nd, to the end of page 9, is almost exclusively taken from the Supplement to the Encyclopædia Britannica, interspersed with some information which he has borrowed from my former publication,

and from the "Case" of Mr. Arkwright, (see the Supplement to the Encyclopædia Britannica, pages 391, 2, 3, and 4). Pages 10, 11, 12, and 13 are, I believe, Mr. Mc. Culloch's own composition, or invention.—I have already replied to them. Part of page 14 and page 15, are again taken from the Supplement to the Encyclopædia Britannica, as is nearly one half of pages 16 and 17, (see that Supplement, pages 396, 7, and 402.) Pages 18 and 19 are also taken from the same Supplement, and from tables published in my book, and other accessible publications. Out of nineteen pages in a leading article in the Edinburgh Review, the substance of twelve is borrowed from a common Dictionary, or Encyclopædia. In page the 6th, Mr. Mc. Culloch informs the public that Mr. Baines has injured his valuable History of Lancashire, by adopting some of the statements given in my former publication, and yet Mr. Mc. Culloch has *himself* borrowed from my book, altering here and there a few words ; for example :

<i>Guest's History of the Cotton</i>	<i>Mr. Mc. Culloch's Article,</i>
<i>Manufacture, pages 20 & 21.</i>	<i>Edinburgh Review, page 7.</i>

"Richard Arkwright was born at Preston, in the county of Lancaster, on the 23rd of December, 1732.

"The extraordinary individual to whom we are indebted for this great and signal invention, was born at Preston, in

Guest's History.

"He had the same appalling obstacle to surmount which Highs himself had—the *res angusta domi*—"

"In the year 1760, he lived at Bolton-le-Moors, in the same county. At this time he was a barber, but soon after he travelled through the country buying human hair. He possessed a valuable chemical secret for dying it, and when it was dyed and prepared, he sold it to the wig-makers."

"Whether he had a natural turn for the mechanics, or whether he had sharp-sightedness and sagacity enough to discover the land of promise through the haze which surrounded him, and was thus induced to seek

Mr. Mc. Culloch's Article.

Lañcashire, in 1732. He was the youngest of thirteen children, and was bred to the trade of a barber. But the *res angusta domi* could not repress the native vigour of his mind, or extinguish the desire he felt to emerge from his low situation. In the year 1760, he had established himself in Bolton-le-Moors, where he exchanged the trade of a barber for that of an itinerant hair-merchant; and having discovered a valuable chemical process for dyeing hair, he was, in consequence, enabled to amass a little property. It is unfortunate that very little is known of the steps by which he was led to those inventions that raised him to affluence, and have immortalized his name. Residing in a district where a considerable manufacture of linen goods, and of linen and cotton mixed, was carried on, he had ample opportunities of becoming acquainted with the various processes that were then in use; and being endowed with a most original and inventive genius, and having sagacity to perceive what was likely to be the most advantageous pursuit in which

Guest's History.

after inventions for spinning, does not appear.

Mr. Mc. Culloch's Article.

he could embark, his attention was naturally drawn to the improvement of the method of spinning practised in his neighbourhood."

Page 37.

"Agricultural labourers being mostly employed alone, have not their understandings rubbed bright by contact and an interchange of ideas. The operative workmen, being thrown together in great numbers, have their faculties sharpened and improved by constant communication. Conversation wanders over a variety of topics; the questions of peace or war which interest them importantly, inasmuch as they may produce a rise or fall of wages, become highly interesting, and this brings them into the vast field of politics and discussions, &c.

Page 36.

"The peasantry dispersed over a wide extent of country, are without the means of assembling, except upon some rare occasions for the purposes either of amusement or instruction. But, by working together, the workmen in manufacturing establishments have, what the agriculturists almost uniformly want constant opportunities of discussing all topics of interest and importance. Their intellects are sharpened by the collision of conflicting opinions.

The first nine lines in page 38, he has also taken from my 11th chapter. He has, moreover, copied from Mr. Baines, what Mr. Baines had taken from me.

*Guest's History of
the Cotton Manu-
facture, Page 47.*

*Mr. Baine's History
of Lancashire,
Vol. 1st, Page
118, and Vol.
2nd, Page 134.*

*Mr. Mac Culloch's
Article, Edin-
burgh Review,
Page 17.*

"In 1818, there were in Manchester, Stockport, Middleton, Hyde, Stayley Bridge, and their vicinities, fourteen factories, containing about two thousand looms. In 1821, there were, in the same neighbour-hoods, thirty-two factories, containing five thousand seven hundred and thirty-two looms. Since 1821 their number has still farther in-creased, and there are at present* not less than ten thousand steam-looms at work, in Great Britain."

"In 1818, there were in Manchester, Stockport, Middleton, Hyde, Stayley Bridge, and their vicinities, fourteen factories, containing about 2000 looms; in 1821, this number was increased to thirty-two factories, and 5732 looms; and at present there are not fewer than 10,000 steam-looms at work in Great Britain."

"We have ascer-tained, that there are, at present, (Ju-ly, 1825) in the pa-rish of Manchester alone, upwards of 20,000 steam-looms in motion."

"According to Mr. Baines, there were, in 1818, in Manchester, Stockport, and the imme-diate vicinity, about 2,000 power-looms; in 1821, they had increased to 5,732; and, in July, 1825, in the parish of Man-chester alone, they amounted to up-wards of 20,000."

These statements of mine were original, and obtained from inquiry, and private sources

* This was written in 1823.

of information. They had not previously appeared in print. I was at some expense in collecting the information, and, being at that time in ill health, I was obliged to seek it through the medium of others. Much more jealousy was entertained at that time than the present, by the steam-loom proprietors, as to its being known what number of looms they possessed, and the answers of my informants to many inquiries were, that such a manufacturer was believed to have so many, but could not have less than so and so, in which case I always inserted the lower number, from a desire to avoid exaggeration, which may have led me rather to underrate the general numbers.

Now, if Mr. Baines has "considerably detracted from the value of his work," by copying from me, Mr. Mc. Culloch has *considerably detracted from the value of the Edinburgh Review, by doing the same thing*. He is in a fair way, by his own account, of writing down the work which is the chief receptacle of his dissertations. I hope some gentleman, who has the honour of Mr. Jeffrey's acquaintance, will draw his attention to this matter. He little knows what a wolf in sheep's clothing he has got in the camp.

Above one half of the first nineteen

pages of Mr. Mc. Culloch's article, is a mere emptying of one vessel into another, and the remaining twenty pages are, as I think, part of one of his own old lectures. But if I am mistaken in this supposition, they may come in, with all their long retinue of probabilities, assumptions, and suppositions, in some future lecture, on political economy, at Norwich, Leeds, or Birmingham; or, if he should write an article on the rise, progress, present state and prospects of the woollen, worsted, or iron manufactures, or any other manufacture, he may work them up over again upon that occasion,—like Yorick's sermon, they will suit any text,—and, whether the world has them in the shape of a lecture on political economy, or an article in the *Edinburgh Review*, is not very important. It is said, that, during the French revolution, the Abbé Siéyes always kept a stock of new constitutions labelled and tied up by dozens in the pigeon holes of his writing-desk, so that his countrymen might, if they pleased, have a new one every week. I can imagine that Mr. Mc. Culloch's writing-desk is equally well provided with ready made dissertations, which will serve either for articles in a review, or for lectures on political economy. I can imagine him seated at his desk, borrowing from the Supplement, connecting what he borrows with a treatise of his

own; with one hand reaching down a splendid suit of praise for Mr. Kennedy, and with the other, a dress of a very different description for a "meagre, prejudiced, and superficial" author, like myself. Mr. Mc. Culloch is called upon, in the way of business, to furnish an article for the *Edinburgh Review*,—a certain number of pages are necessary; the *Encyclopædia* furnishes him with narrative, and he can, with great rapidity, spin a cobweb, or "emulate the web of the gossamer,"* with a series of assumptions and inferences which he may dignify with the name of political economy; of these, and a sprinkling of abuse upon the author he reviews is his article compounded. The new Lord Peter, with dauntless confidence, then palms his crusts upon the readers of the *Edinburgh Review* for mutton. As long as they pay six shillings a head for their quarterly feast, and are contented with the fare set before them, all goes well; the *Edinburgh Review* is supplied with the regular quantity of letter-press, and the readers are satisfied. I have not the slightest wish to make them dissatisfied with their cook, or with the materials he uses in compounding their dishes; opinions and tastes

* See *Edinburgh Review*, No. 91, Page 31.

vary ; some prefer original dishes, some a hash of former ones ; thus all sorts are used, and thus there are purchasers of reviews of all kinds, good, bad and indifferent. I myself am not fond of things at second hand, but others may be so ; to such I leave Mr. Mc. Culloch's article ; so Peter Pindar's toper, finding a quantity of drowned flies in his glass, very gravely returned them into the bowl, observing, "Though I do not choose to "swallow dead flies other people may."

My object in publishing my former work was not to make a book, but to communicate to the public certain curious information which I possessed, the minute circumstances of which, and the evidence on which it rested, they were probably not acquainted with. Feeling the strength of my own case, and knowing that the one on the other side was as slender as possible, fearing also to weary the reader, and wishing to say a little to the purpose rather than a great deal to no purpose, I studiously compressed the materials of my history, into the smallest possible compass, avoiding, as much as possible, the repetition of what was to be found in other books of easy access ; I have, therefore, I suppose, given occasion to Mr. Mc. Culloch

to call it meagre and superficial.—Certainly I have not proceeded like him—transferred into my work whole pages from the Supplement to the Encyclopædia Britannica and Mr. Arkwright's "Case," then *adopted and followed the book I was abusing*, then blamed Mr. Baines for himself following it, and, lastly, as the climax of folly and self-stultification, after animadverting upon Mr. Baines for copying me, copied a statement *from Baines*, which Mr. Baines had himself previously *taken from me*,—actually swallowed and re-produced in the pages of the Edinburgh Review, after all this scorn of my treatise, the twice vomited statement which was originally taken from it.

I did not examine the two main points here discussed, namely, the inventions of the roller-spinning and the jenny, at so much length in my former work, as I certainly should have done, had I known that the wounded vanity of Mr. Kennedy would have aided Mr. McCulloch in making an attack upon it. Mr. Kennedy has no ground for taking offence at any thing there stated. It is true, I was more successful with respect to my subject than he, but if he would have been at the trouble of making inquiries at Leigh he might have obtained

the same information as myself. He had great facilities for knowing the leading facts I detailed, having lived in the immediate neighbourhood of the place where they occurred seven years; however, it did so happen that he has not mentioned one of them, nor pointed out one of the many errors which, I trust, I have done. *Hinc illæ lacrymæ*. But I think he might have had the charity to have pardoned me, he or I having a reciprocal right to pursue our inquiries into a matter of historical curiosity, without reference to the course or conduct of each other. I forbore, on the former occasion from motives of delicacy and respect, to point out his errors, but I have been now compelled to go into the questions at issue more fully than before, and either to give up the controversy, or examine it to the bottom, and with it the origin and causes of the strictures and animadversions upon my book.

I cannot conclude these remarks without acknowledging the assistance I have received, professionally and otherwise, in the course of this work, from my friend Mr. Littler, Solicitor, of Manchester, particularly in his having drawn my attention to the weak parts of my opponent's case, and placed in a strong point of view some of the arguments which favoured my own.

I now make my bow, and take leave of Mr. Mc. Culloch, and should recommend him, at parting, to be chary of his philosophical reputation. Mr. Malthus has corrected a position maintained in this very article, (page 30th) as could any man of business, namely, that when wages rise, profits fall, and *vice versa*—it being notorious that they frequently rise and fall together. His position that the corn laws do not, like an ordinary tax, transfer wealth from one portion of the public to another,—that the corn monopoly produces a positive and utter destruction of capital “without increasing the comforts or enjoyments of any individual,” to nearly as large an amount as the revenue it raises, and that only a very small portion of the amount it extracts from the consumers finds its way into the pockets of the landowners,* has also been ably and completely refuted by Mr. G. W. Wood, of Manchester; his doctrine respecting absenteeism—has been answered by general feeling, and how successful his lucubrations have been upon what I suppose, are his tenets, with respect to the roller-spinning and the spinning-jenny, I must leave to the reader.

He will be an able exorcist, if he can, when he next takes the chair as a Lecturer on Poli-

* See Edin. Rev. Vol. 44. p. 342.

tical Economy, drive from his auditory the dim spectres of these defunct and exploded dogmas, which I fear may have the effect of alarming some of those who have generally considered his harangues to be mines of political wisdom.

ERRATA.

NOTE to Page 38.—The Spinning of the Warp is probably here meant, the Spinning Jenny could never be advantageously used for that purpose.

NOTE to Page 116.—A hank is 840 Yards, and the fineness of the Thread is measured by the number of hanks that are contained in a pound weight of Cotton.

Page 90, line 13, read *Supplement to the Encyclopædia Britannica*.

Page 134, line 9, for *makes* read *make*.

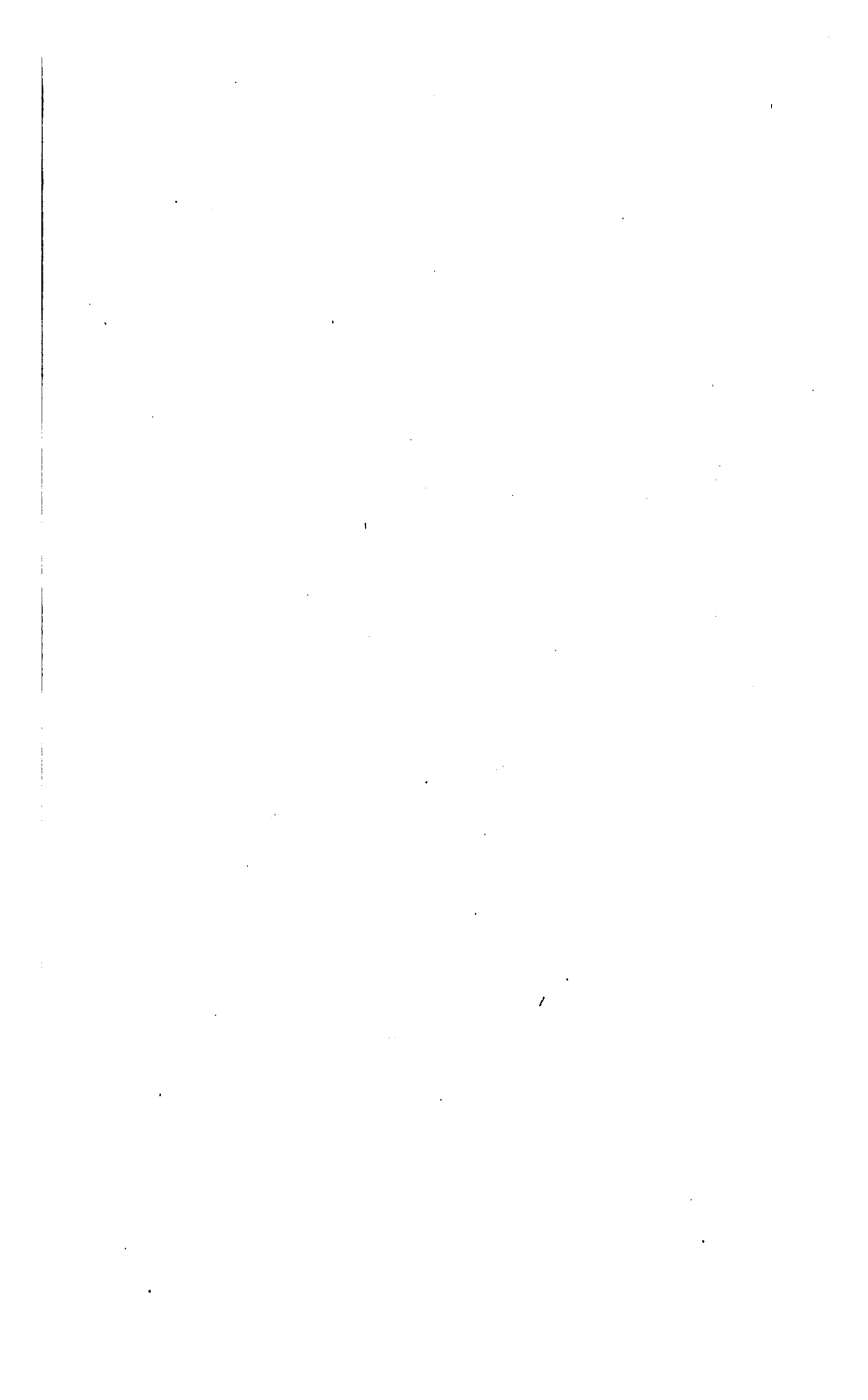
„ 140, „ 21, for *what* „ *which*.

„ 148, „ 16, for 1769 „ 1770.

„ 190, „ 4, for *arguments* read *assertions*.

„ 202, „ 17, dele *was*.

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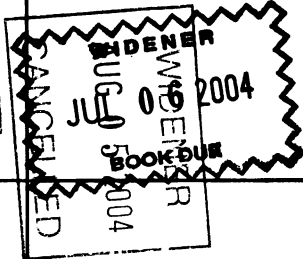
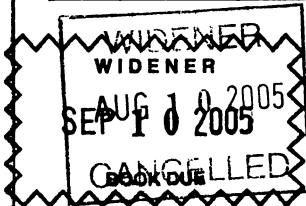


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